Drug & Cosmetic INDUSTRY

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Drug & Cosmetic INDUSTRY

APRIL 1944

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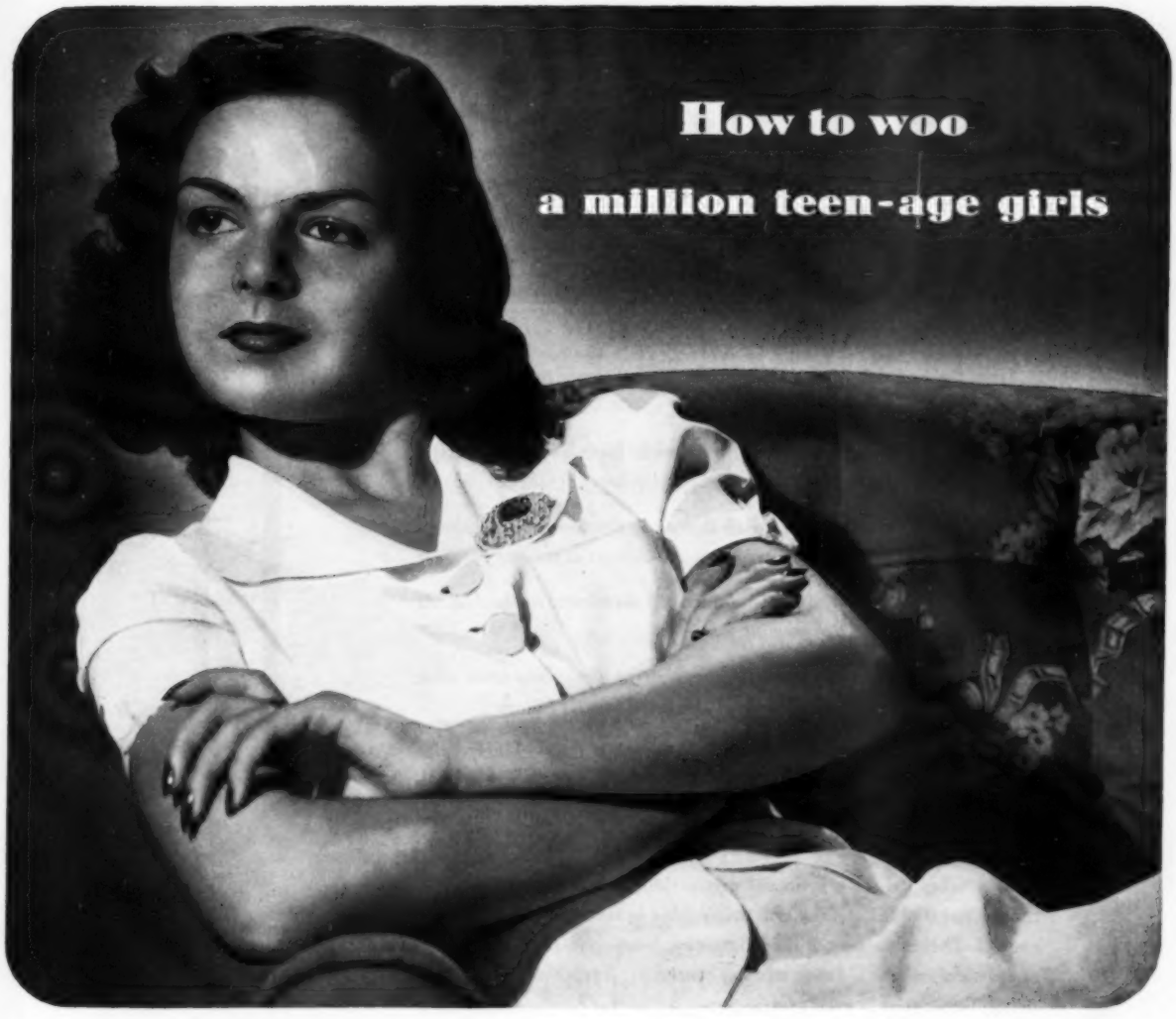

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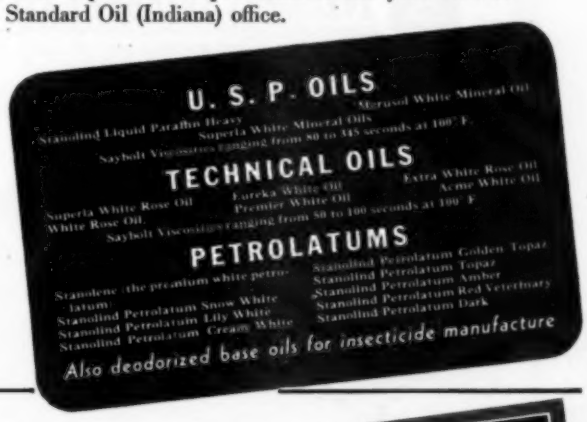
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Absorption bases, used in cold creams, dinner creams, all-purpose creams, cleansing creams, emulsion hair tonics, etc., generally form W/O emulsions. Atlas G-1165 and Atlas Arlacels are highly efficient W/O emulsifiers. Relatively small amounts of these may be used to replace part or all of an absorption base. To avoid undue thickening of the oil-like content of existing formulas, petrolatum, mineral oil, or wax may be added. A simple, typical cleansing cold cream formula employing absorption base is presented in Table I, together with three formulas in which part or all of the base is replaced by Atlas products. Formula 2 illustrates the replacement of half of the absorption base by G-1165 or Arlacel C and petrolatum. In formulas 3 and 4 the base is completely replaced

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INSIDE NEWS

APRIL PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1944

POST-WAR PAINT PROSPECTS

Full-capacity Markets, New Techniques, Point To Favorable Forecast; Competition of "Paintless Materials" Not Expected To Be Decisive

Paint manufacturers are enjoying a partial revival of the civilian market, as emphasis shifts to essential civilian maintenance this Spring.

Pigment section of the industry finds itself in a rather more favorable position than before, since the recent relaxation of the linseed oil priority permits a 10% increase, and probably 16% to 20% more paint. However, since flaxseed exports from Argentina are cut off for several months, buyers must look for further shipments from Canada.

The present situation inevitably stimulates discussion of long-term post-war prospects in paint.

Best opinion is, paint manufacturers should be working to absolute capacity for at least two or three years after cessation of hostilities. Four factors support an inflationary forecast:

The railroads' widespread maintenance and repair plans, including scrapping of a large part of present rolling stock . . .

An expected building boom, almost certain if government, both federal and state, and private planners, have their way . . .

The need to re-paint 50 million deadweight tons of merchant shipping, to carry a good part of the world's trade . . .

Considerable demand for consumer's goods requiring paint finishes, both for domestic and exports markets.

Will new developments substantially affect paint's post-war markets?

Much has been said about the possibility of new materials eliminating the need for paint finishes, but the upshot of the matter is . . . not much. Colored plastics will, it is true, eliminate paint to some extent, but, as one automobile designer has pointed out, polished plastic panels may be easily dulled, and probably hard to match in case of repair or replacements. Pigmented steels are still far from being a commercial reality.

In addition, paint men are bearing in mind that light metals generally require some kind of paint protection; and that the plywoods . . . which are going to be coming into their own in a big way . . . will almost always be coated with some clear synthetic.

The paint industry will continue post-war to be affected, adversely, by a number of material shortages . . . and, favorably, by certain new techniques developed during the war.

The shortage of linseed oil may continue and China wood oil is certain to be scarce, owing to the war-devastation of tung oil trees by the Japs. Chief sources of material for high-quality paint products are likely to be polymerized linseed oil, dehydrated castor oil and Brazilian oiticica oil in moderate amounts.

New techniques will improve both manufacturing and application of paint products. Electronic baking, for instance, has already cut baking time to way below the time required pre-war.

In applying paint to ships, or other broad metal structures, "brushes" of oxyacetylene flame will greatly speed and improve the operation, forcing moisture out of the metal's surface, providing better surface, better finish.

A wider market for luminous paints can be expected. Stimulus of war on production has lowered cost of luminous paint from $8 to $30 per pound down to $1 to $2.50 per pound. Safety applications may extend into the home, reducing household as well as industrial accidents. Other uses: illumination in case of power failure, warnings and directional signs, advertising, and printing of special reading and correction sheets in certain occupations.

Most revolutionary development, however, will come from a still experimental and entirely new method of finishing both wood and metal, by using a low-melting synthetic resinoid without a solvent, sprayed on to the work by an electrically heated atomizer or sprayer. Tested with a sprayer which keeps uniform temperature of over 200° F., and uniformly applied, this material was hard and dry in less than 15 minutes. The high temperature permits elimination of the solvent. Further details are still confidential. 605

Borax

Borax is being recommended in Britain as an insecticide material for the control of cockroaches and other pests. A borax and pyrethrum mixture has heretofore been used regularly, but in view of the scarcity of pyrethrum, use of the borax alone is now advocated. Official investigations have found that borax should effect a 95% kill of household pests in nine days.

British workers have discovered that a washing compound containing borax and dry soap possesses considerable fungicidal properties, but is so mild in action as to reduce any tendency to dermatitis. In addition to the benefits imparted by the soap, the borax contributes detergent and water-softening properties. 606

Wine Ageing

Artificial ageing of wine can be induced rapidly by treatment with ultraviolet rays, according to the findings of French investigators. A clear wine with a fine bouquet is produced by this speed-up method. 607

Bush Pumpkins

Canners will have available to them, probably in 1945, a new type of pumpkin which grows on a bush instead of a vine. Just released to seed growers for propagation, the new Cheyenne resembles the small sugar pumpkin, and weighs three to four pounds. It grows on short, upstanding, vigorous plants which do not need staking. The plants need be only four to five feet apart, and the yield is six tons to the acre, as compared with four tons for the New England Pie that must be planted eight feet apart. The Cheyenne ripens very early to a clear yellow color. It is recommended for production in northern regions where earliness is an important factor; has an advantage in irrigated areas, as the bush does not interfere with irrigation as does the vining type and because of the absence of trailing vines, the crop can be cultivated all through the growing season. 608

Irish Moss in Canned Meat

Irish moss can be substituted for agar as a jelling agent in canned precooked chicken. Gelose, obtained from the moss by extraction in hot water, is undesirable in color and taste, but treatment with activated charcoal and filtration through diatomaceous earth remove all odor and taste and most of the color. Gel strength is somewhat less with Irish moss than with agar, for the same amount of jelling agent added, but the presence of small amounts of potassium salts brings up the strength of the moss jellies to that of the equivalent agar jellies. 609

Dairies and Penicillin

The dairy industry can expand substantially in helping to produce enough penicillin to take care of all needs. The mould penicillium notatum grows in a culture of lactose or milk sugar. Demand is increasing sharply but penicillin production now is only a fraction of what it will be. In 1942 approximately 7.5 million pounds of lactose were used in the United States for all uses, none for penicillin. In 1944 it is estimated five million pounds will be required for penicillin alone with a future estimate of 12.5 to 14 million pounds. New processing plants will raise total production to about 10.5 million pounds of lactose, probably not enough by two million pounds. This may be taken up by lactose made from cheese whey, a fairly simple process for cheese factories who do not now have an outlet for their whey. 610

Cannery Waste Pectin

Crude citrus pectin which can be used by preservers in the manufacture of jams, jellies and marmalades is possible from citrus cannery waste, according to a new process developed in the South. The crude pectin is produced by leaching grapefruit peel with water and then drying and grind-

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ing the peel. A second method has been developed for extracting pectin from the ground product by a process of hydrolysis. Grapefruit cannery waste contains from 2½ to 4% of pectin. During the past season, Florida canneries processed more than 17½ million boxes of grapefruit, yielding 322,000 tons of peel and pulp, less than 60% of which waste was used commercially, the remainder being dumped. This is the source of raw material for making either crude or pure pectin.

The manufacture of pure powdered pectin requires elaborate and specialized equipment, but the refined pomace, which may be used by jam and jelly makers as a source of pectin, may be made in equipment most of which is already available. 611

Cocoa Butter Substitute

By special processing, a substitute for cocoa butter has been produced from cottonseed oil. The physical differences between this fat and cocoa butter are minor—it has a slightly longer plastic range, supercools less strongly, and contracts slightly less upon solidification. The chemical composition is somewhat different, because of the presence of iso-oleic acids. Yields are low, but the residue is suitable for use as a hardening agent in shortening and similar products. 612

Petroleum Jelly

Petroleum jelly has been found effective in combating the swelling and gangrene caused by prolonged exposure to salt water often suffered by torpedoing victims. Canadian medical research has found an impregnated stocking an easy method of application of the treatment. 613

Melamine Improved

Melamine manufacture from cyanamide or dicyanamide by an improved method is claimed in a recent British patent. In the process described, a solution of cyanamide or dicyanamide is heated in an autoclave in a solvent comprising liquid ammonia, with or without the addition of anhydrous methanol or other diluents to reduce the autoclave pressure, while agitating the charge. 614

Anthracene Purified

Anthracene paste purification by heating the mass, allowing it to cool carefully, and then pressing to remove the content of entrained oil is described in a recent British patent. The process can be applied to pastes from which the oil could not be removed by direct pressing, and in the modified method hydrocarbon impurities accompany the expressed oil in such portion as to produce pastes exceeding 40 percent in anthracene content. 615

Technical Topics

PALE RESINS—Citric acid can be reacted with terpenes or terpene alcohols in the presence of an unsaturated fat or fatty acid to produce pale resins according to a recent British patent. The resultant resins, in addition to being very pale, are declared to be easily soluble, be more water resistant than the usual alkyds, and when incorporated into a varnish to dry rapidly and harden thoroughly even when applied in thick films. A varnish of suitable viscosity can be obtained, the patent claims, by simply adding a lacquer benzene to the resin. 616

SODIUM LACTATE—Sodium lactate in an isotonic solution has been found effective when given orally in combatting the shock phase in severe, extensive third degree burns. Heretofore the material has been commonly administered intraveneously in plasma. The solution was chilled prior to treatment. 617

CARBON SULPHIDE—Production from carbonaceous materials can be increased by more than 30% through use of certain sodium and potassium salts as catalysts it was recently reported by several Russian workers. Sodium carbonate, sodium sulphate, and sodium hydroxide were found among the most effective. 618

FINISHING PAINT—A paint which dries to a pebble surface and hides minor finishing defects is now being offered by an American manufacturer. The material is stated to eliminate the need of filling, sanding and sealing paints on machine housings and castings, and thus speed production appreciably. Application is by means of a spray gun. A range of colors is available. 619

CORN GERM PROTEIN — "Defatted" corn germ has as high a biological value as meat. Experiments at a Western university show defatted corn germ contains 21% protein, 85% as digestible as beef protein. 620

GRANULAR SILICA GEL—Recently developed, the gel is eliminating time-consuming degreasing operations in package machinery. By sucking up half its weight in moisture, damp air is eliminated from cargo space. 621

SYNTHETIC CEMENT—A synthetic cement, superior to putty, for glass instrument windows has been developed by a leading American manufacturer. 622

SCENT ALLERGIES — Allergic effects, such as hay fever, have been reported from the scent or odoriferous particles of some trees and plants. These effects are totally unrelated to hypersensitiveness from pollen and may explain the failure of pollen extract therapy in some cases. 623

MULTIPORE—The development of a filter material containing as many as 6400 perforations to the square inch is now being used by chemical plants, food factories, medical manufacturers, coal and iron mines, steel mills, liquor distillers and many other types of industry. It is also filtering fruit juices for shipment to combat areas; serving in purification of insulin and aiding production of magnesium metal. 624

COD INSULIN—Insulin from codfish is a new find reported from a foreign fisheries' research station. 625

CINCHONA REPLACEMENTS — Over 100,000 cinchona plants, the bark of which provides quinine, have been raised in American greenhouses and shipped to Ecuador, El Salvador, Nicaragua and Peru for planting and cultivation. 626

CORK SUBSTITUTE—Peanut shells are the new substitute for cork. After four years of research, a Southern experiment station has worked out a commercial process for shells heretofore used as fuel. 627

CAUASSU WAX—A new Brazilian industry, cauassu wax, equal to and much easier to harvest than carnauba wax, is expected to expand rapidly after the war. The wax is obtained from the underside of the cauassu leaf, which is also used to wrap fresh meat and to make containers for flour and sugar. 628

DERRIS CUTTINGS — One-hundred-thousand cuttings of derris have been planted in Haiti, in cooperation with the United States for future rotenone insecticides. Several South American countries are receiving cuttings by aeroplane. 629

BANANA ALCOHOL—A new industry projected in the British West Indies is using bananas to produce ethyl alcohol. 630

Every effort will be made to furnish additional information on these articles. Where such information is not obtainable, we will refer inquiries to the original source of the article. Write to National Can Corporation, 110 East 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

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NOTICE

On the 19th day of January, 1944, in the United States District Court, a final judgment was entered by stipulation of the parties decreeing that Max Factor & Co. is the owner of *the registered trade-mark*

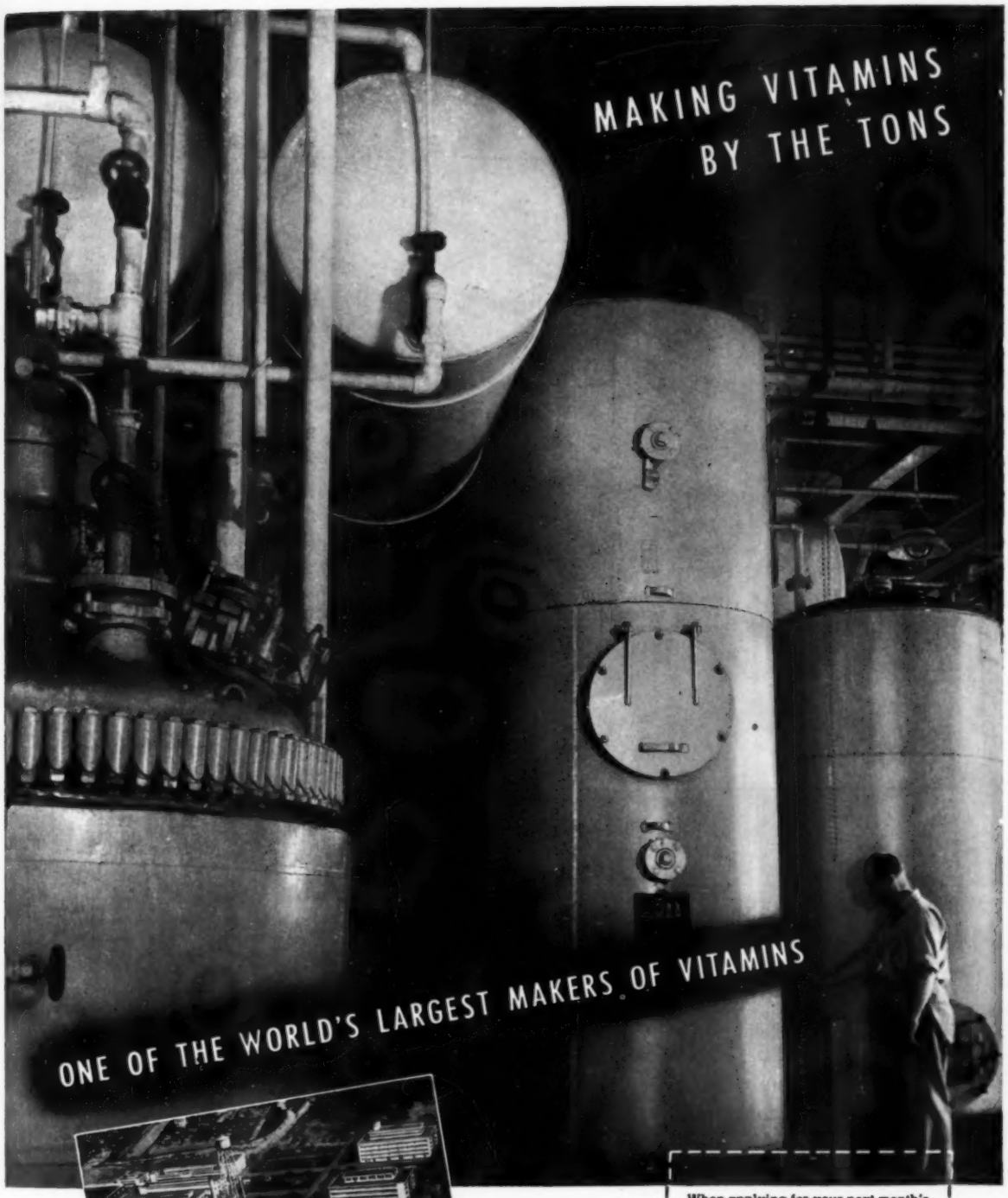
PAN-CAKE

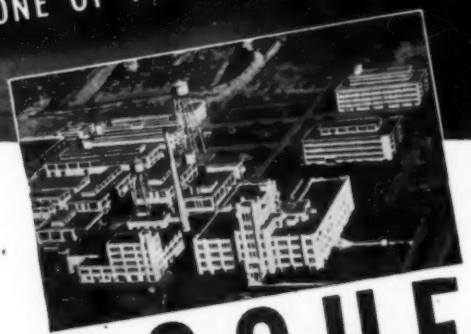
This trade-mark was registered September 28, 1937, in the United States Patent Office No. 350402 for cosmetics and related products.

The Court held the registration to be valid and subsisting, and permanently enjoined the defendants:

(a) From using the name "Pan-Cake" in connection with the sale of cosmetics and related products, and

(b) From passing off upon calls for "Pan-Cake" any product not the product of Plaintiff, Max Factor & Co.





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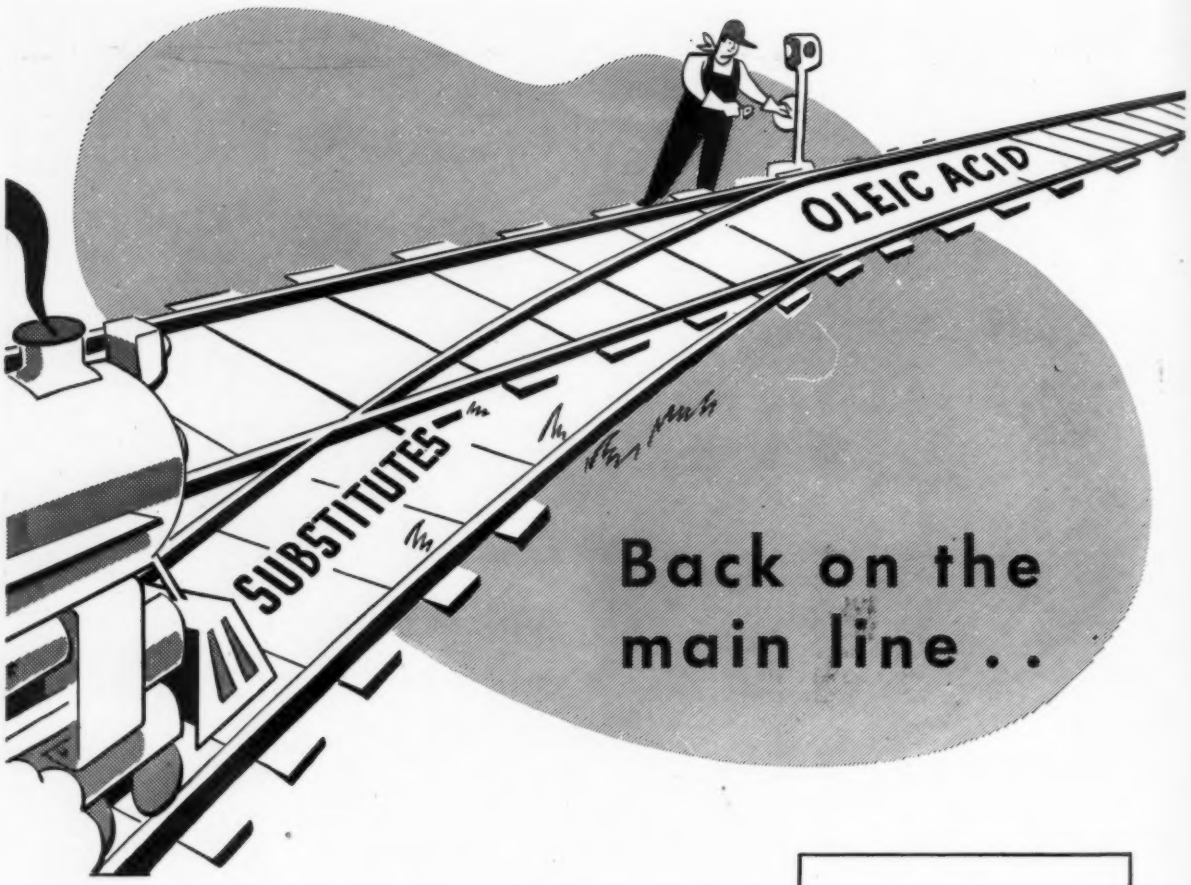

During the past month there have been definite signs of the easing of oleic acid, and our inventory position has improved to a point where we can make prompt shipments of all distilled and saponified grades of red oil.

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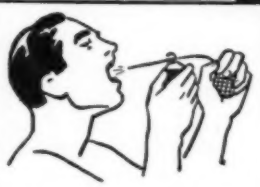

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PETROLATUMS U. S. P.

TYPE I: *Medium Consistency—White Protopet—Yellow Protopet and other colors*

TYPE II: *Soft Consistency — White Fonoline — Yellow Fonoline*

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DEO-BASE— Light hydrocarbon distillate refined to complete freedom from kerosene odor.

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BUTOBEN (*n*-Butyl Parahydroxybenzoate Merck), an antiputrefactive and antifermentive agent, is an effective, nontoxic preservative in various preparations, and can, in most instances, be used in place of some of the preservatives which now may be unavailable.

BUTOBEN can be used in acid and neutral products, as well as in moderately alkaline media. It is economical because of the small quantity required (2/100 of 1%), *i.e.,* only 1 ounce is required to preserve 35 gallons of a preparation. Suggested uses are in gum solutions for hairwave setting, and various types of liquid preparations, including face and hand lotions, cosmetic creams, medicinal elixirs, tonics, certain eye lotions, and emulsions.

BUTOBEN, while an excellent preservative for the aqueous phase of cosmetics, does not prevent rancidity of oils and fats, as this is not caused by micro-organisms, but by hydrolysis and subsequent oxidation, and for which purpose an antioxidant is required.

As many cosmetic and medicinal preparations are composed of several ingredients, some of which may be incompatible with certain preservatives, we suggest that you consult the Merck Chemical Service Department regarding your manufacturing problems and requirements.

Samples of BUTOBEN will be supplied to manufacturers on request.

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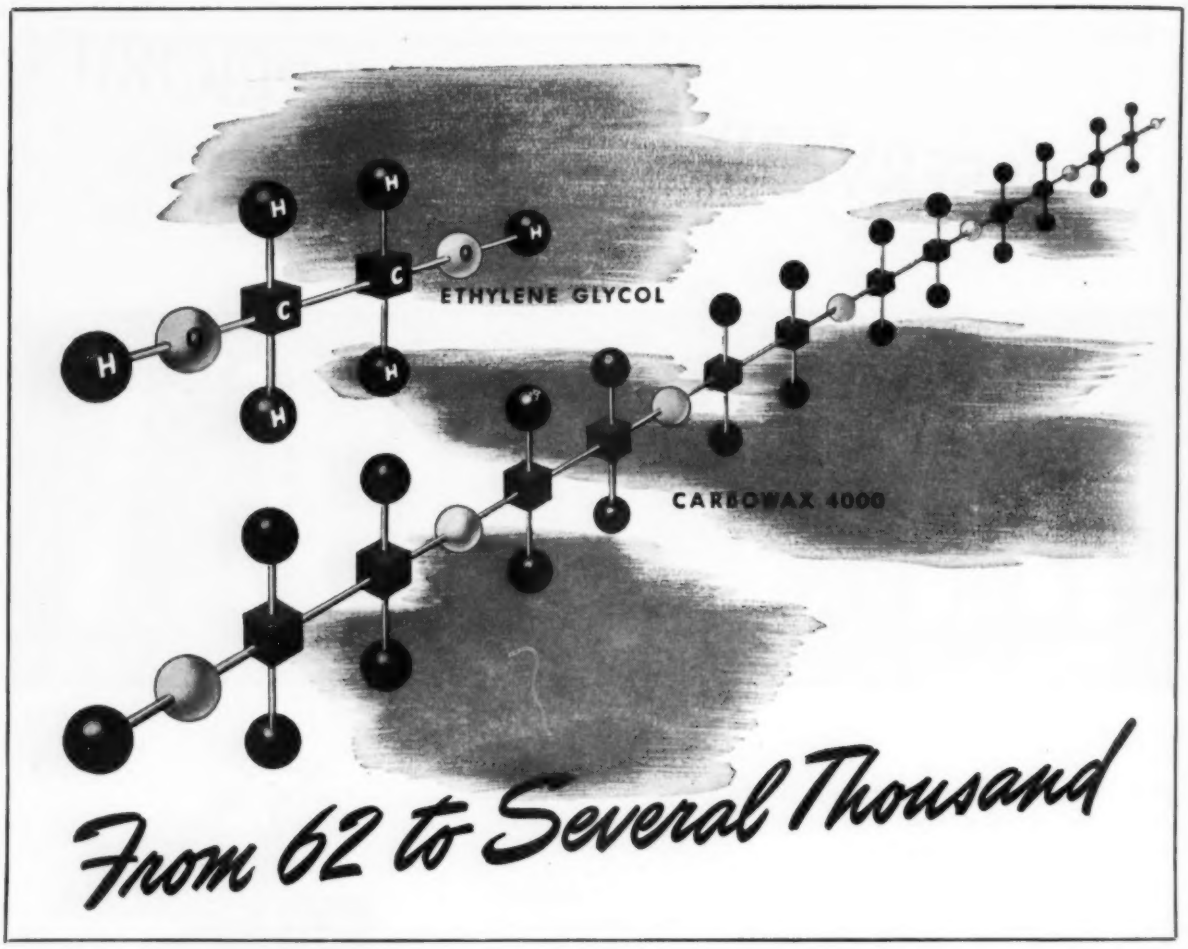

From 62 to Several Thousand

THE two molecules pictured here are smallest and largest in the family of glycols produced by Carbide and Carbon Chemicals Corporation. With molecular weights from 62 for liquid Ethylene Glycol to several thousand for wax-like Carbowax compound 4000, the family consists of 5 simple glycols and numerous polyglycol mixtures. These chemicals are so important that some of them are now restricted to essential war applications.

The glycols have distinctive family traits: water solubility, a wide range of hygroscopicities, low vapor pressures, high boiling points, and the ability to lower the freezing point of water.

Glycols are good solvents for certain gums and resins; propylene glycol, particularly, is an excellent solvent for certain antiseptics and other chemicals of pharmaceutical importance.

Carbowax compounds are especially useful as bases for water-soluble cosmetic creams and therapeutic ointments. In addition, Carbowax compounds are used in hair dressings and conditioners, and in "no-rub-off" white shoe dressings.

Carbide and Carbon Chemicals Corporation was the first chemical company to develop large-scale production of glycols. Our chemists and engineers have also pioneered the development and production of 12 other important chemical families . . . including alcohols, ethers, amines, and ketones . . . useful raw materials for many industries.

Today we are producing in commercial quantities more than 160 synthetic organic chemicals . . . and more than 40 of these in tank car quantities. After the war these versatile chemicals will be available in greater quantities than ever before, and many new compounds with them.

For further information about the use of these chemicals, write to us.

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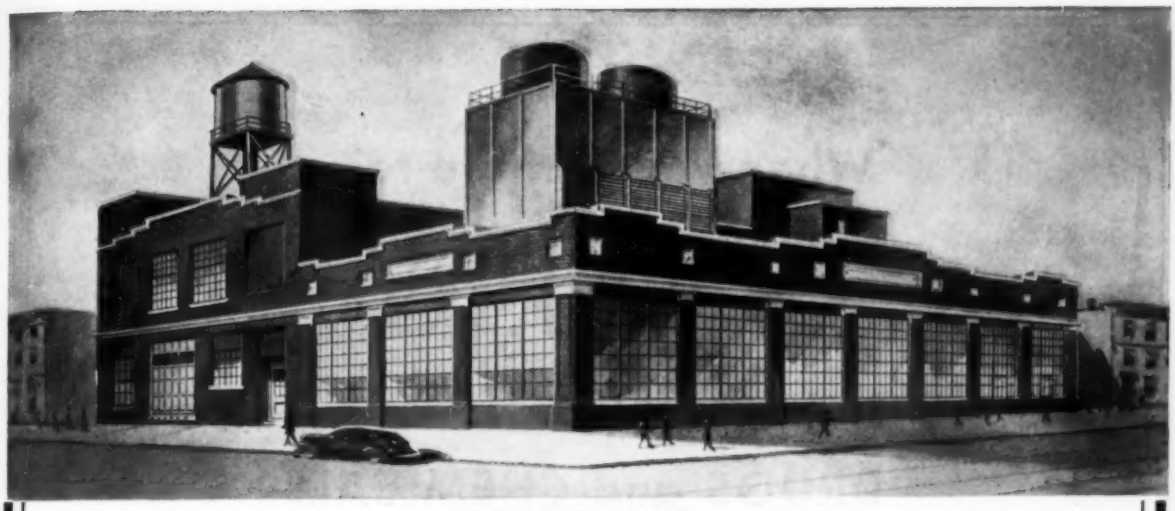

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Third, laboratories for control assays and final thorough tests for potency, sterility, and freedom from pyrogenic and other toxic substances. These include air-conditioned quarters for the animals used in these tests.

Erection of this plant was at the earnest request of our government. Recognizing the urgent need for Penicillin by our armed forces, we have pushed this construction with all possible speed and its completion has been accomplished in an almost unbelievably short period.

Its operation will increase our output of this important bacteriostatic agent many times and will have a most pronounced influence on its availability.

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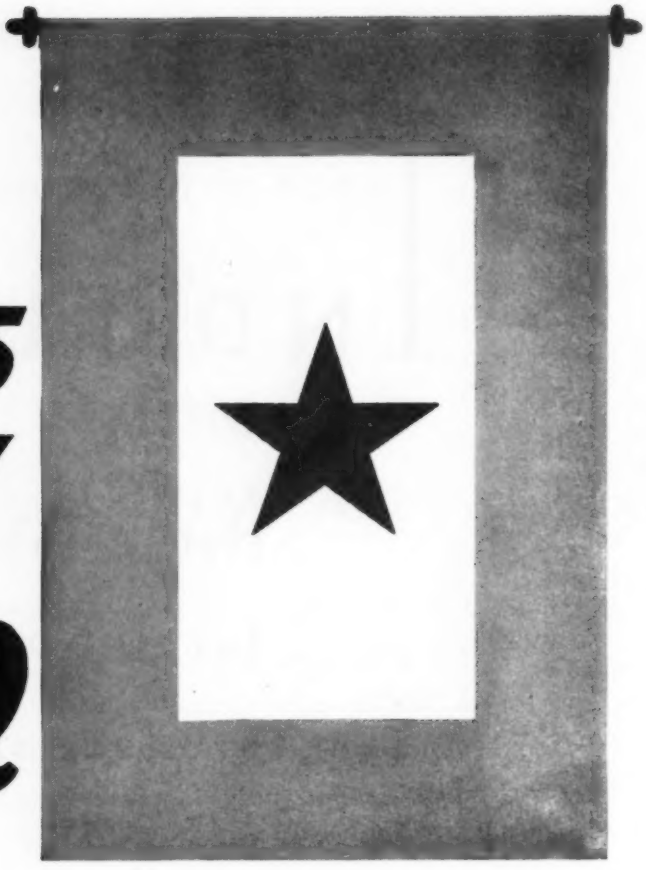

Over 30% of the employees of N.Y.Q. are in the armed forces. They are doing their part on the fighting front. We on the home front are doing our best to support them by producing N.Y.Q. chemicals of high quality — and by regular purchases of War Bonds.

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. . . The Nation's Press Continually Reports New Triumphs For SULFADIAZINE. Let CALCO Help You Profit From This Popularity.

CALCO'S large scale production of Sulfadiazine (see illustration of stock awaiting shipment) now permits supplying of civilian demands as well as those of armed forces.

Sulfadiazine Cures Resistant Malady

Ends Actinomycosis Which Had Defied Other Drugs

Chicago—Sulfadiazine treatment abruptly terminated a stubborn case of actinomycosis, according to authentic reports recently made public here.

The disease had grown progressively worse for over a year before the Sulfadiazine treatment was started with one gram doses by mouth every four hours. A week later the quantity was cut to 1 Gm. four times a day. This dosage was maintained for the duration of the treatment, 120 consecutive days.

Two Weeks Required

It was fully two weeks before any noticeable improvement in the lesions could be observed. However, in the ensuing weeks, the abscesses disappeared and the scars actually dissolved, leaving the skin practically in a normal condition after physician and patient had almost despaired.

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SULFADIAZINE has demonstrated its unusually high effectiveness and low toxicity in the treatment of pneumonia, pneumococcic infections, and hemolytic streptococcus and staphylococcic infections. That's why its popularity as "The Drug Of Choice" for these uses is mounting steadily.

Endorsed by the Surgeon General's office for the armed forces, Sulfadiazine, it is conservatively estimated, has been employed in the treatment of more than 6,000,000 cases in the comparatively short time since its introduction.

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(For Veterinarian Use)

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Pharmaceutical Department
CALCO CHEMICAL DIVISION
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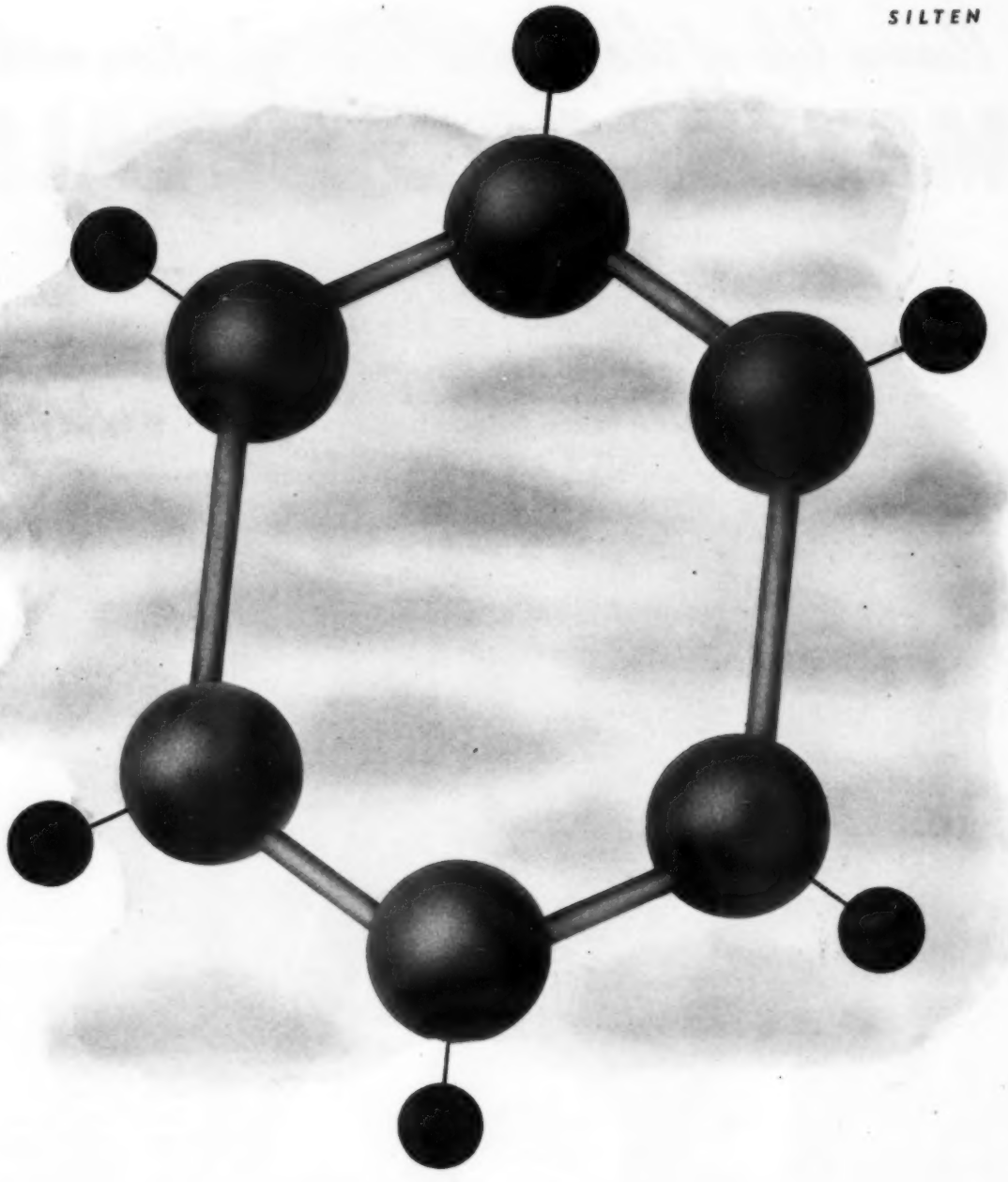
SILTEN



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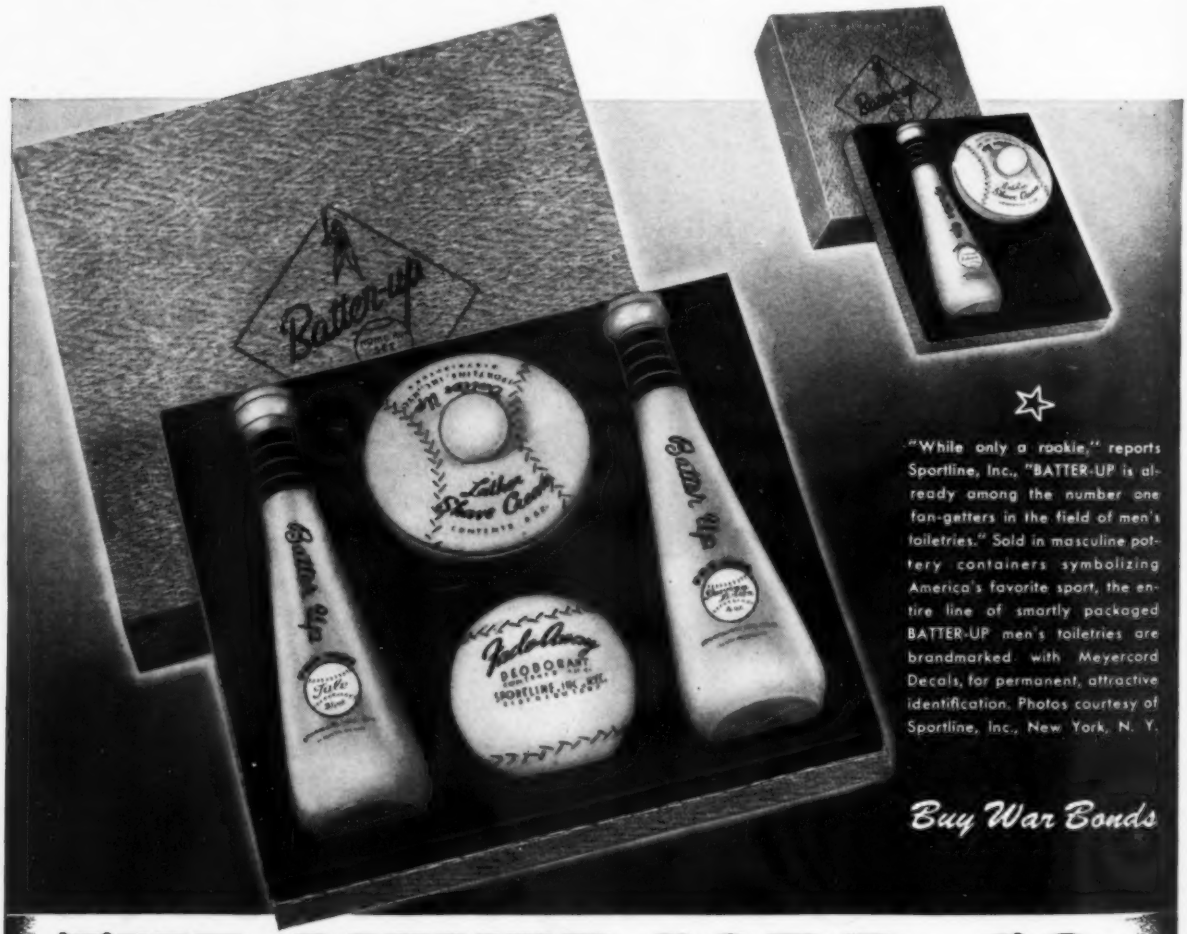

"While only a rookie," reports Sportline, Inc., "BATTER-UP is already among the number one fan-getters in the field of men's toiletries." Sold in masculine pottery containers symbolizing America's favorite sport, the entire line of smartly packaged BATTER-UP men's toiletries are brandmarked with Meyercord Decals, for permanent, attractive identification. Photos courtesy of Sportline, Inc., New York, N. Y.

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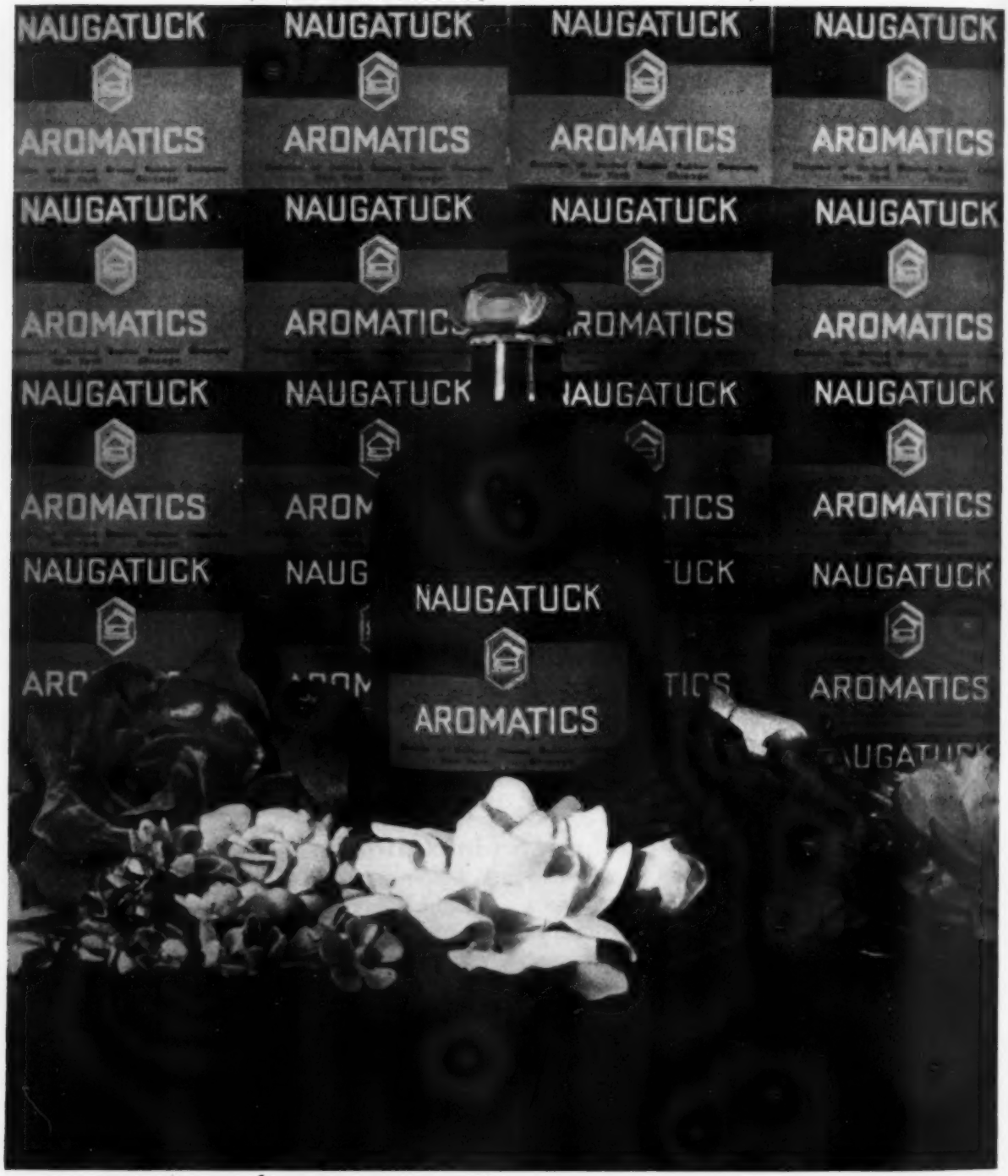

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Write for the new Penn-Drake Bulletin today. This book pictorially and factually tells how Penn-Drake White Oils and Penn-Drake Petrolatum will improve your products for medicinal, cosmetic or other use.

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Unfamiliarity with the effects and cost of some of these treatments can easily cause a serious and unnecessary loss of potential package quality.

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"I'm wiring the boss a whale of an idea for a post-war product. It contains 6 vitamins, 4 minerals, 3 hormones, and a laxative."

KEEPING POSTED

Valuable Fish Livers

THE greatly increased demand for vitamins and the inability of obtaining fish liver oils from Norway, Iceland, Japan, and other normal sources has caused us to use other fish livers, largely the livers of sharks. The livers of sharks are unusually large, running from 10 per cent of the total weight for the Dogfish and Soupfin to 25 per cent for the Basking shark. The largest Basking shark caught is said to have weighed 8,600 pounds, with a liver weighing 2,100 pounds, 60 per cent of which was oil. A Basking shark liver weighing over 2,000 pounds was delivered at Astoria last Fall. Liver prices staged a meteoric rise in the latter part of 1943. Soupfin shark livers went up to an all-time high of $9.40 per pound in the open market—a value greater than that of bar silver. So as the synthetic vitamins decline in value due to a more widespread use, the natural vitamins have increased in price also due to a more widespread use. This is just another instance of the fact that has been proven many times—increased use of natural prices means higher prices, and increased use of synthetic products means lower prices.

Sulfa Drugs for Tetanus and Malaria

FURTHER startling results are being obtained through research conducted by drug manufacturers of this country in newer derivatives of the sulfa drugs. One manufacturer is now conducting clinical tests on a sulfa drug that apparently destroys the anaerobes that are the cause of lock-jaw, or tetanus. Another manufacturer is conducting clinical tests on a sulfa drug that appears to completely eradicate malaria from an individual suffering from this dread disease. Such a product, if used widely, would make possible the complete eradication of this scourge throughout the world, and would eliminate entirely the need for quinine and atabrine. These are only two of the hundreds of variations of sulfa drugs that are now being tested. What the ultimate results of these further researches in chemotherapy will be, is hard to predict except that they will be amazing.

Alcohol from Sawdust and Sweet Potatoes

WPB has approved construction of alcohol plants using sawdust and sweet potatoes as raw materials. The sawdust alcohol plant with a capacity of 4,100,000 gallons annually, will be erected for operation by the Williamette Valley Wood Chemical Co., Springfield, Ore., at a cost of $2,247,000. The sweet potato alcohol plant with a capacity of 7,000,000 gallons annually, will be erected for operation by the United States Sugar Corp., Clewiston, Fla., at a cost of $2,056,000. Both plants, which are the first of their kind in this country, are expected to be in operation within twelve months.

The sawdust alcohol plant will employ the Scholler-Tornesch process, which, from results in Europe and in this country on a small scale, promises a yield of 50 to 60 gallons per ton of dry wood substance, compared with 25 to 30 gallons from American practice in World War I. The present need for increased alcohol supplies has ended argument about the economy and competitive position of this process.

Chlorophyll in Chewing Gum

DR. WILLIAM J. HALE, the well-known research chemist of the Dow Chemical Company, now has a chewing gum containing chlorophyll which is called the "Vita Green." The product has only been marketed in Midland, Mich.,—the home town of Dr. Hale and of Dow—due to the shortage of gum chicle. It seems that in 1941 there appeared in a medical journal an article on the healing efficacy of chlorophyll against sinusitis and pyorrhea. Immediately, Dr. Hale, knowing that chlorophyll functions best in the presence of its naturally occurring companions, the carotinoids—yellow and orange plant pigments—proceeded to prepare chlorophyll-carotinoid-containing gum. The carotinoids, notably the caronenes, serve as acceptors for molecular oxygen, and the xanthophylls serve as donators of oxygen, all functioning best in the presence of certain enzymes.

The chewing gum not only contains about 0.1 per cent by weight of water soluble chlorophyll and the carotinoids, such as carotene and xanthophyll, but also about 2 per cent by weight of dried brewers' yeast, rich in vitamin B complex which contributes to the stabilization of the carotenes and thus makes more certain the pronounced effect of

both chlorophyll and carotinoids in their stimulation and growth of connective tissue.

The general results obtained through the use of this gum have been recorded in many cases, indicating alleviation of sore throat, mouth cankers, trench mouth, bleeding gums, and pyorrhea.

Pressure Containers for Cosmetics

WE NOTE that Egmont Arens, the noted designer, predicts that the pressure containers now being used for insect control by the armed forces, may find a place in the application of liquid cosmetics, hair lotions, and cosmetic stockings.

Fiber Container Revisions

THE fiber shipping container order has been amended to aid one branch of the industry but to restrict another branch still further. Veterinary remedy manufacturers, who have been complaining because their quota was only 65 per cent, have been raised to 80 per cent. Still not satisfied, they are shouting for 100 per cent. However, the quota for cosmetics, with the exception of dentifrices and perfumes, has been reduced to 60 per cent from 65 per cent. Dentifrices have been reduced to 70 per cent from 80 per cent.

Milk Sugar Advisory Committee

MILK Sugar Industry Advisory Committee has been formed by WPB with Harry C. Trelogan as Government presiding chairman. Members of the committee are:

E. F. Miller, Borden Company, New York; Mahlon Kline, Smith, Kline and French Laboratories, Philadelphia; H. S. Van Bomel, Sheffield Farms Company, New York; R. E. Meade, Western Condensing Company, Appleton, Wisc.; J. J. Quilligan, M. & R. Dietetic Laboratories, Columbus, Ohio; W. F. Richards, S. M. A. Corporation, Mason, Mich.; Charles Leister, Nestles' Milk Products, New York; William H. Atkinson, Charles Pfizer & Co., Brooklyn; Dr. T. G. Klumpp, Winthrop Chemical Company, New York; K. H. Hoover, Commercial Solvents Company.

The Long-lived Schieffelins

IN PERUSING a most interesting book which Schieffelin & Co., "Oldest Drug House in America" are distributing in celebration of the 150th anniversary of the founding of the company, we were more than a little impressed with the longevity of the Schieffelins who have headed the firm during its long history. It seems that the business was originally established by Effingham Lawrence in 1781, which really makes the firm 163 years old. The Schieffelin name did not enter the firm until 1794 when the business was bought by John B. Lawrence and Jacob Schieffelin, the firm name becoming Jacob Schieffelin in 1799. But to get back to the matter of age, Jacob Schieffelin died at the age of 78; his successor, Henry Hamilton Schieffelin lived to the age of 82; the next in line, Samuel Bradhurst Schieffelin, reached the age of 90 years; William Henry Schieffelin, who followed Samuel, apparently did not take as good care of himself as the others since he died at the early age of 59; however, Dr. William Jay Schieffelin, president from 1906 to 1922, and chairman of the board from 1922 until his retirement in 1929, is still alive and kicking at 78; and the present president, William Jay Schieffelin Jr. is a mere youngster of 53.

Vitamins for Absenteeism

DESPITE the frequent attacks on vitamins being made by many who indulge in the art of attempting to smear something that is generally accepted, vitamins continue to prove their value in a greater number of instances. As an example, workers at Stromberg-Carlson, who are receiving free vitamins from the labor-management committee to cut unavoidable absenteeism due to colds, are so sold on the idea that they are buying hundreds of 100-tablet bottles of tablets a month for their families.

The workers are being given vitamins as part of a 130-day test to determine whether vitamins can help build resistance to colds and other respiratory infections that produce more than three-fifths of the unavoidable absenteeism. Avoidable absenteeism is running below 2 per cent. In 1943, 60 per cent of all absenteeism was due to sickness, of which more than two-thirds was colds. To combat these colds, free vitamins are being supplied during January, February, March and April, which are the months in which the colds ran greatest. The purchase of vitamins by workers at cost for their families may cut absenteeism further, according to Stanley H. Manson, executive secretary of the company's labor-management committee, who says that the survey revealed that one-sixth of unavoidable absenteeism is due to sickness in the family, which forced working mothers to stay home and care for their children.

Drugs in Brazil

THE Brazilian pharmaceutical industry which depended almost entirely upon imports from France and Great Britain before the last war, is now—in the course of World War II—on the way towards national self-sufficiency, says the Brazilian Government Trade Bureau. This present trend, which represents a direct outgrowth of the twenty years armistice between the two World Wars, is the result of an expanded domestic manufacture and of German, Swiss, and American development of Brazilian subsidiaries during the interim period. Brazil's position, therefore, has been strengthened by an ever increasing independence of foreign producers and, in recent war years, by intervention of the national government in the affairs of German subsidiaries, many of which are in the process of liquidation and transfer to national ownership. The import trade today is limited to the supplies

Why can't Lend-Lease equipment make life easier for Ethiopian civet producers?

of drug ingredients unobtainable from Brazilian sources.

Pharmaceutical specialties were produced in Brazil in 1938 to the value of $24,313,735. The number of units of pharmaceutical preparations produced in Brazil increased from 56,255,000 in 1931, to 142,502,000 in 1939. Annual sales of drugs in Brazil are valued at $35,000,000. Retail outlets are placed at 6,500; hospital and clinic pharmacies, 200; wholesale outlets, 500; laboratories, 500; percentage of foreign laboratories, 10; biological laboratories, 12.

Drug products are divided as follows: Tonics 35 per cent; laxatives 30 per cent; depuratives 15 per cent; sedatives 10 per cent; other medicines 10 per cent.

Imports of chief medicinals declined sharply from $2,458,400 in 1939, to $1,251,250 in 1940. The items making up this total are: Injections, $1,330,-300 in 1939, against $653,400 in 1940; quinine, $191,600 in 1939, against $189,500 in 1940; medical syrups, $325,700 in 1939, against $98,600 in 1940; pills and capsules, $176,050 in 1939, against $68,-600 in 1940; balsam and pomade, $103,650 in 1939, against $54,500 in 1940; medicinal tablets, $175,050 in 1939, against $64,750 in 1940; codeine, $18,300 in 1939, against $8,700 in 1940; morphine, $7,650 in 1939, against $2,600 in 1940; serums and vaccines, $90,250 in 1939, against $40,650 in 1940; purgatives, $16,400 in 1939, against $8,550 in 1940; theobromine, $3,450 in 1939, against $5,800 in 1940; Caffeine, $20,000 in 1939, against $21,150 in 1940; and vitamin C, not reported in 1939, and $34,450 in 1940.

Two Wood Alcohols

NOW that ethyl alcohol is being produced from sawdust and from waste sulfite liquors from paper mills, we literally have two wood alcohols—ethyl and methyl!

Sharp Rise in Phthalic Anhydride

THE extent to which phthalic anhydride is being required in the war effort is clearly indicated in the following statement by WPB:

"Newly-developed military demands have made it necessary to increase the nation's capacity for producing phthalic anhydride by between 12,000,-000 and 15,000,000 pounds a year. Chemical is used in resins, dyes, plasticizers, certain foods and pharmaceuticals, but it is the effectiveness of one of its derivatives as an insecticide that has resulted in increased military demand. This is expected to run to 24,500,000 pounds."

F.D.A. on Phenol Warnings

THE Food and Drug Administration has issued a trade notice on phenol warnings. The warning states that products containing one per cent or less of phenol need not bear warnings of any kind; those containing over one per cent, but not more than two per cent should bear warnings against applying to large areas of the body and that a bandage should be used when applied to fingers and toes; if the product contains over two per cent, it is not ordinarily regarded as safe for indiscriminate use unless offered for spot application, or unless there is something unique about the composition.

Good Natured Laxative

WE READ an advertisement in the "Pharmaceutical Journal" (London) entitled "Lixen, the Good-Natured Laxative." We wonder just what they mean by this description.—whether it is a laxative that does not gripe, or if it is one that will never let you down in the subway or bus.

Taking It Easy

A BRITISH journal tells of a sample of gravy browning being purchased and tested as the result of a complaint, the composition being 2.4 per cent of brown coal-tar dye, 3 per cent of salt and other mineral matter, and 94.6 per cent of water, etc. the journal states that "practical tests showed that it gave a satisfactory color to gravy but that if it were used to color meat pies, or particularly meat and potato pies, the pastry and the potato developed a most unappetizing yellow or greenish-yellow coloration. *The Minister of Health was communicated with, pointing out the unsatisfactory nature of this product.*"

Oh boy! can you imagine the swift action that would be taken by the FDA if anything like that occurred in this country?

Activated Carbon Used for Penicillin

ACTIVATED carbon is being used extensively in the manufacture of sulfa drugs, atabrine, and penicillin. Requirements of activated carbon for production of penicillin alone have been estimated at between 3,000,000 and 4,000,000 pounds annually to produce sufficient penicillin both for the armed forces and civilians. Industrial Chemical Sales Division of West Virginia Pulp and Paper Company is materially increasing its production of carbon at its Covington, Va., and Piedmont, W. Va., plants to care for these new demands. Activated carbon is widely used for removing tastes and odors from municipal water supplies. In penicillin extraction the penicillin is adsorbed on the carbon and then recovered by coating the carbon surface with a solvent which acts as an insulator between the carbon surface and the water holding the penicillin, which is washed free.

Surplus Glycerin, Aluminum, Et Al

JUST another instance that the battle of production in this war is well in hand if not completely won, is the removal of restrictions on the use of glycerin in the manufacture of many products including cosmetics and other toilet preparations for the period of April 1 to June 30. Other actions along the same line are the permission to use aluminum for closures for foods and drugs within quota limits. This means that manufacturers of drugs and foods can switch from their present materials to aluminum if they used aluminum in 1939, 1940, or 1941. Still another instance is the probability that all restrictions will be taken off the use of magnesium, and the statement by officials that if a certain Government-financed magnesium plant is not properly operating within three months, it will be shut down. The surplus of some 500,000 pounds of bichloride of mercury which the Army has declared as surplus out of total purchases of 1,000,000 pounds, points clearly to a surplus of still another metal—mercury.

No Rise in Alcoholic Drugs

OPA has ruled that, as a result of the increased Federal tax on alcohol, drug manufacturers may not advance prices of preparations manufactured with alcohol above the March 1942 levels established under GMPR. The situation is this: When the prices were established under GMPR, the alcohol tax was $4.00 per proof gallon, with no drawback. Since November 1, 1942, the tax has been $6.00 per gallon, with a drawback of $3.75 per gallon, leaving a net tax of $2.25 per gallon. The tax under the new law effective April 1, is $9.00 per proof gallon, with a drawback of $6.00 per gallon, leaving a net tax of $3.00 per gallon, which is $1.00 below the tax in effect when the maximum prices were established. Manufacturers who lowered their prices when the drawback went into effect are allowed to raise them, but the increased prices in such cases must not exceed the prices originally established under GMPR.

More Vitamins For Drugs

CIVILIANS will receive more vitamins in 1944 than they received in 1943. From a total allocation of slightly more than 2,500,000 pounds of synthetic vitamins, including ascorbic acid, thiamine, riboflavin, and niacin, civilians will receive about 1,333,333 pounds, or slightly more than 53 per cent. Our armed forces and war services will receive 361,806 pounds, or about 14 per cent, while exports to our allies, liberated areas, and other friendly nations will total 888,193 pounds, or about 33 per cent. Great Britain and Russia will receive almost all of the exported vitamins, only 3 per cent of the total expected to be required by liberated areas. Allocation to U. S. civilians will be used both for pharmaceutical preparations, and enriching of foods.

Production of ascorbic acid in 1944 is expected to total 43 per cent more than in 1943, and about 1,000 more than in 1941. Civilians require about 35 per cent of this vitamin, while our armed forces are to receive 18 per cent, and export commitments 47 per cent. This is an increase in civilian allocation over 1943 of 22 per cent, military 25 per cent, and export 60 per cent.

Thiamin production in 1944 will be 43 per cent above 1943, and 500 per cent more than in 1941. About 74 per cent of this vitamin will go to civilians 9 per cent to our armed forces, and 17 per cent to our allies and other friendly nations. This is an increase over 1943 of 15 per cent for civilians, 200 per cent for the armed forces, and 22 per cent for our allies and other friendly nations. About 56 per cent of the civilian allocation will be used for food enrichment, and 44 per cent for pharmaceutical preparations.

Civilians will require about 61 per cent of the nicotinamide allcation, and 63 per cent of the nicotinic acid allocation, while our armed forces will require 3 per cent of nicotinamide, and 14 per cent of nicotinic acid. Our allies and other friendly nations will get 36 per cent of nicotinamide, and 23 per cent of nicotinic acid. Civilians are to receive 40 per cent more nicotinic acid and nicotinamide than in 1943, while about 478 per cent more of both will be available to our armed forces and about 116 per cent more to our allies and other friendly nations.

Anthelmintic Use Large

PHENOTHIAZINE, the synthetic organic chemical derived from coal-tar and used as an anthelmintic, has become in less than five years since the discovery of its anthelmintic action, the most widely used of all internal parasites. Currently its consumption in this country is about 3,000,000 pounds annually.

From Steel to Phenol to Cashew Nuts

IT IS well established that as demand for natural products increases, the price increases, whereas in the case of synthetic products the reverse is true, that is, as demand increases, the price declines. However, phenolic plastics seem to be heading into raw material difficulties even though plastics are generally considered as synthetic products which are replacing natural products. The difficulty is that as phenolic plastics are used to replace steel, the consumption of steel is cut. This means that less coal will be converted into coke for the manufacture of steel. With less coke being produced, less coal tar will be produced, and as less coal tar is produced, there will be less phenol available for the manufacture of the phenolic plastics. Therefore, by replacing steel with phenolic plastics, the manufacture of the plastic is automatically curtailed. However, a natural product is being developed as a source of phenol, and that product is the oil of the shells of cashew nuts. This means that a synthetic product might have to turn to a natural one for a necessary raw material, and thus the cost of the synthetic might be governed by the rule that applies to increased use of natural products.

Penicillin Plans

NEW plants contemplated in the penicillin program begun last June were 95 per cent completed by the first of this month and 90 per cent of the operating facilities had been delivered, according to the Chemicals Division of WPB, which stated that no further expansions will be approved, although it may be necessary to grant a limited amount of priority assistance to individuals with original processes for making penicillin.

The penicillin producers advisory committee has been asked for recommendations for civilian distribution when penicillin is available for this use to the extent of 10,000,000,000 units or more a month. Various proposals have been advanced, one being that civilian distribution through the drug industry would begin on a percentage-of-production allocation when a surplus of 10 to 15 billion units a month over military requirements is available, with the exception that the National Research Council would continue to meet requirements for critical cases not otherwise taken care of in which there is immediate jeopardy to life.

A criticism of this method advanced the thought that such a system would create another black market since there were people who could pay high prices for needed penicillin, while there were others who could not afford even low prices. The critic advanced the proposal that the civilian material available be returned to the manufacturers who would turn it over to hospitals and similar institutions in their territory for use only on cases of the types indicated by Dr. Keefer, of Evans Memorial Hospital of Boston, who has long been in charge of distribution of penicillin for civilian use.

Atabrine Prices Down Again

PRICES of atabrine tablets have taken another tumble as production has been increased and costs lowered. The new prices are $3.00 per 1,000 tablets for the Army and Navy as compated with a former price of $3.50; and $4.00 per 1,000 to civilians as compared with a former price of $6.00. When atabrine was first introduced in this country, the price was $66.66 per 1,000 tablets. By 1941, the price to the Government had been reduced to $23.75, and a year later to $9.00. Thereafter, further reductions were made to $8.00, $6.00, $4.50, and $3.50, and now to $3.00. The civilian price was reduced in 1942 from $23.75 to $19.50, and then to $15.00. In 1943, it went to $8.00 in two reductions. On January 3, 1944 it was reduced to $6.00, and now it is $4.00.

Peppermint Oil and the OPA

THE OPA advances in peppermint oil prices should accomplish the avowed purpose of increasing production of peppermint oil in this country, but it will hardly aid the average consumers in obtaining this peppermint oil. In other words, unless some change is made in the way that the peppermint oil order is being interpreted, distribution of peppermint oil, as it has been known, will cease to exist.

Prices of peppermint oil for the farmers in the peppermint producing regions of Michigan and Indiana have been advanced from $5.50 to $7.00 per pound. An advance of 50 cents per pound over the farmer's price is allowed for the price which the dealer may charge to the consumer. In addition a ceiling of $8.05 per pound is set for redistilled oil of peppermint. So far, so good. But the farmers and other handlers of peppermint oil in the producing areas are setting themselves up as dealers and they are charging the dealers' price of $7.50 per pound. This means that the established essential oil dealers are now unable to handle peppermint oil at anything but a loss since they would have to pay $7.50 per pound for oil in the country, and then resell it at the same price. Furthermore, if they were to redistill it and sell it at $8.05 per pound, they would also suffer a loss since they would have to buy the crude oil at $7.50.

There is a possibility that the dealers might be able to sell small lots,—200 pounds or under—at prices above the established ceiling. But all the large consumers will have to do business direct with the sellers in the country unless OPA takes some steps to straighten out the mess that it has created under this order. The order will have the effect of putting the established essential oil dealers out of the peppermint oil business for the most part, and peppermint oil is one of the basic items upon which the essential oil business is founded. There can be no compromise on such a situation as far as the essential dealers are concerned, they must fight until the threat to their positions as indicated in this order is removed.

"*This* hormone cream will do you a world of good."

Has Plant Therapy a Place in this Industry?

IN SPITE of its economic importance and its large potential market, veterinary medicine, until recent years, has been a step-child—usually a neglected one—of most pharmaceutical manufacturers and most pharmacies. Manufacturers' research showed little tendency until lately to explore this field for the products developed for human therapy.

Now, under the research speedup of the war, it seems evident that an entirely new conception of plant pathology and the treatment of plant diseases will emerge for the post-war period. It seems logical to inquire why the pharmaceutical industry and the pharmacist with his botanical and chemical training and ability should not be actively interested in participation in this 75 million dollar business.

That there is a basic similarity between many plant, animal and human diseases has long been known. Plant pathology is largely a study of the life history of bacteria, fungi and viruses. Plant cells are basically similar to animal cells and the destructive action of these lower forms of plant life show many striking similarities. Bur for generations plants have been dosed with harsh metallic compounds and the advancing therapy of medicine has been a science carefully insulated from botany or horticulture.

We hail the great discovery of penicillin in human therapy but this common fungus, a plant, has at least a theoretical basis for its action in its own environment. Just lately the University of Arizona has found that the bacteria responsible for the rot of cactus can be knocked out in culture by penicillin.

One of the new organic chemicals, now at war, when applied to the soil in solution, is drawn into the plant and makes the leaves toxic to certain beetles. Botanists have long known that certain substances, of no physiological value to the plant, may be carried into the plant system and plant tissues, and stored there with no apparent harm to the plant. That they may be of great benefit to the plant in a therapeutic sense seems to be one path to a new field of research.

Pharmaceutical manufacturers who are making plans for post-war expansion will find the field of plant therapy, at the threshold of new development, a field of vast economic importance and rewards, a field familiar to them in many of its phases and liberally equipped with research institutions to supplement their own specialized work. Not least of the factors to be considered is that they have a distribution which is capable of handling such products.

PHOTO COURTESY SPERRY GYROSCOPE CO., INC.

Company medical care intensifies reaction to the high cost of hospitalization.

THE MEDICAL FUTURE

and Its Effect on the Drug Industry

THE medical profession and the manufacturers of pharmaceutical preparations, ethical specialties, and proprietary drug products are most definitely facing a real possibility of socialized or state medicine being introduced in this country during the war or shortly after the end of the war. If this occurs, it will not be the fault of the politicians, but it will plainly be the fault of the medical profession itself. The politicians who would be responsible for the enactment of the law that would bring this form of medical practice into being would not be to blame. They are merely the representatives of the people, and, therefore, they favor, for the most part, only what is popular with the majority of the people whom they represent. If, by favoring socialized or state medicine, these representatives can attract votes and thereby stand a better chance of being reelected, they will favor it. And no amount of argument from the medical profession will change their attitude. After all, the medical profession is a very small percentage of the people who cast votes, and therefore, it does not carry a great deal of weight with the run of the mill politician.

The survey made by the Opinion Research Corporation for the National Physicians Committee for the Extension of Medical Service indicates that the people surveyed do not want a six per cent payroll deduction for medical care. However, it also indicates that the people want methods for easier payment of doctor and hospital bills. Aside from this, the survey does not mean much. The only factor in it that seems important to the doctors is that the people want to be able to choose their own doctors.

Because of the fact that the people want easier methods for paying their medical bills and also want the right to choose their own doctors, the Committee is now trying to interest insurance companies in expanding into the field of health insurance. This is being done in an attempt to stave off a receptive attitude on the part of the people to a government plan insuring them an easy method for paying the cost of medical care.

The factors that have caused the trend toward socialized medicine are many. One of the main factors is the irrational method by which doctors arrive at their fees. The policy of charging as much as the traffic will bear and then explaining that it is necessary to charge the people with money as much as possible in order that the doctor can do charity work is not very impressive. Many people know that through charity work the doctor gains valuable experience, and that, in large measure, it is to gain this experience that the doctor does it. They do not see why they should have to pay for the time which the doctor spends in gaining experience just because they happen to earn more money than some other people.

Another factor that particularly annoys people is the high cost of hospitalization. As a rule, people just do not understand why a room in a hospital costs so much more than a room in a hotel, especially in view of the fact that hospitals continually run deficits while hotels make money. There has as yet not been an answer to this question that has satisfied the people who complain, many of whom have often contributed to drives to make up deficits for hospitals.

The problem has been intensified for the reason that large numbers of men are now receiving medical care from the companies for whom they work. The wives of these men know what the benefits are. These women

tell other women, and the men tell other men, and thus the demand for medical care on similar care is spread by word of mouth.

The medical profession well realizes that this demand exists and that an increasing number of people are asking for changed conditions. Since the doctors appreciate that the demand has been intensified by the medical care plans of large industrial organizations, unions, and other groups, they are trying to answer the demand by interesting insurance companies in issuing policies for health insurance. In this way, they feel, prepaid medical care can be placed at the disposal of those who cannot obtain this sort of thing through their occupations, and it will also place prepaid medical care at the disposal of the wives and children of those who are able to obtain it through their occupations.

Whether the widespread issuance of health insurance policies by insurance companies would answer the problem is very much open to question. It is realized that if the Government were to put into effect a six per cent payroll deduction for medical care, this would apply to those who were working for others and who therefore come under the Social Security Act. This would leave without such care all those who have their own businesses, such as retailers and others, farmers and their employees, domestic employees, and many others including the wives and children not only of these people, but also of those who are themselves covered by social security.

If insurance policies were issued by a large number of companies, it is questionable just how great a percentage of the people would buy these policies. It would take a long period of time and much education before the sale of this type of policy would become widespread. Then there is always the possibility of a large number of these policies being discontinued if the holders of the policies do not have illnesses and thereby obtain the benefits of the policies.

The difficult situation in which the medical profession finds itself is clearly the result of the unwillingness of organized medicine to permit any liberalization of the established methods of practice until it was forced upon them. Group practice of medicine was opposed, as were other practices which many of the younger men in the profession favored. The iron hand of the medical was doubtless used to keep the boys in line. Membership in the A. M. A. is exceedingly important to a doctor. Aside from the fact that A. M. A. approved hospitals and other physicians probably will have little to do with a doctor who is not a member of the A. M. A., there is the likelihood that a non-member cannot obtain mal-practice insurance,—a very necessary thing to a physician.

The matter of ethics in the medical profession has always been a difficult thing for the average layman to understand for the simple reason that the ethics of the profession are for the protection of the members of the profession and not for the protection of the patients. In many cases, a physician called in on a case by another physician will continue to give treatment ordered by the first physician even though the second physician knows the treatment to be wrong. To tell the patient the truth as the second doctor sees it, even though this doctor be the regular family physician and the doctor giving the orders a specialist of sorts, would be a violation of the ethics of the profession. Further, doctors often hesitate to send their patients to certain specialists, even though they believe that such a course is honestly indicated, for the reason that they do not want to lose the patient to the other doctor. The stealing of patients is a terrible crime among doctors.

After all, doctors are human beings trying to make a good living for themselves and their families. However, the average patient somehow does not consider this side of the doctor's problem, feeling that the family physician has an interest beyond the fees he charges. This feeling seems only to apply to the regular family physician and not to the specialists and the doctors that may consult offhand. Recently we were told of an incident which occurred to a man who has held an important position with a leading pharmaceutical manufacturer for a great many years. It seems that this man had a cold. He knew the preparation that he wanted to use, but he had to have a prescription for it because it contained a narcotic. Therefore he went to a nearby doctor to whom he was a total stranger. The doctor recommended diathermy and gave the man a treatment for which he charged $5.00. The man was told to come back. When he came back he was given another diathermy treatment and again charged $5.00. Again he was told to come back. The cold was not at all improved by the diathermy, but on the third visit he was given a prescription for the drug which he wanted and this chased the cold. Now he feels that he was one of many who were forced to pay for this physician's diathermy machine. This incident is typical of similar experiences which innumerable people have had at the hands of some doctors.

If the tide toward socialized or state medicine is not stemmed, the pharmaceutical manufacturers, the proprietary drug manufacturers, and the wholesale and retail druggists will suffer along with the medical profession. This is for the reason that under this type of medical practice nothing but official preparations published in the U. S. P. and N. F. will be used in the treatment of disease. Progress in medicine at the hands of the manufacturers in this industry will be practically halted to the detriment of the health of the Nation, the medical profession, and the drug manufacturing industry. Such preparations as would be used, might well be largely or completely dispensed by the physicians or by government-operated dispensaries to the complete ruination of the wholesale and retail druggists. For this reason all who are interested in the manufacturing and distribution of drug products have a real interest in the future of the practice of medicine. However, there is little that these interested factors can do as it is clearly up to the medical profession itself to take steps that will remove the criticisms which have brought about the present situation.

LIQUID MAKE-UP BASE

By H. HILFER*

THE current trend toward the use of accessories to face powder for make-up has produced a new product which seems to be meeting with considerable success. The liquid type of make-up base is an application of a uniform colored film to the face, this film acting both as an agent to hide small blemishes and other skin defects and to enhance the natural coloring of the skin. It is not the purpose of this article to compare the relative merits of this product with other types of make-up bases, such as the popular cake make-up, since they all have their own merits and defects, but to discuss the qualities which are to be sought after in order to achieve a product which will meet with popular acceptance.

The liquid type of make-up consists of an oil vehicle in which are suspended pigments and fillers. The means of application is to invert the bottle over the tip of the index finger and to transfer the adhering material to the face. Three dabs placed on the forehead and either cheek usually suffice to cover the face with a uniform thin film, after being rubbed over the surface with the fingers. The most important single factor, therefore, is the viscosity of the final product, since this characteristic will influence the amount of the material which will adhere to the finger. Generally speaking, the higher the viscosity, the greater will be the amount transferred.

The viscosity may be controlled by the choice of the oil or mixture of oils and by the type and the amount of pigments and fillers incorporated. The formulation has an infinite number of possibilities in the choice of the vehicle including mineral oils and ranging through the vegetable oils of the non-drying class, such as olive and sesame oil. There are pros and cons attached to the use of both. Mineral oils are not as likely to become rancid, but it is claimed that the vegetable oils are more apt to produce a more natural effect on application. In either case they should be modified by the pigments and fillers to produce a film which is not "greasy" in appearance after application.

This may be accomplished in a number of ways. Titanium dioxide, if used judiciously, will overcome this effect. This substance has a high covering power and therefore helps produce a film which is opaque enough to overcome the "greasy" appearance of the vehicle. If the film is capable of application in a thin layer, it would also help to minimize this defect. If the film consists of a low viscosity oil whose viscosity is raised by the addition of titanium dioxide, zinc oxide, or other filler, it would appear that the purpose would be accomplished. A proper balancing of the ratio of pigments to vehicle will also enable the film to possess a sheen, if it is desired, or to appear dull. Too great a percentage of a filler—and this is particularly true of titanium dioxide—may cause the film to assume an unnatural mask-like appearance. Other fillers may be used to offset this effect and to build up the viscosity if desired. Talc or kaolin in conjunction with titanium dioxide or zinc oxide would do very well.

The ideal product would be one in which the pigments and fillers were in a state of permanent suspension. The writer has not as yet seen any on the market in which there is no settling of the powder to the bottom of the container and thinks that avoiding this separation is most difficult to attain. The next best arrangement is to use a bulky filler (bulky in the sense of large volume per unit of weight) which will not settle as far below the liquid surface as others. Another method of offsetting the effects of such a separation is the use of oil-soluble colors to simulate the color of the powder phase in suspension so that there will not be too sharp a contrast between the clear oil layer and the powders which have settled out of suspension.

The choice of colors should be similar to those generally used in face powders. Stable insoluble colors

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should be chosen so that they will not be affected by the possible ravages of perspiration or moisture. The oil soluble colors if used should be tested against any possibility of a tendency to stain the skin as this may produce an effect definitely not anticipated by the consumer. Since the make-up is used more generally in the Summer months when it is subjected to strong sunlight, both the pigments and other coloring agents should be chosen with a view toward their fastness to light.

The methods of manufacture of an oil make-up base all depend on a thorough intermixture of the pigment and filler and their subsequent incorporation into the vehicle. The color and filler may be ground through a micro-pulverizer beforehand, mixed with a portion of the oil, and finally ground through the roller mill or ointment mill. This portion may then be added to the remainder of the oil and mixed until homogeneous. Alternately the well mixed mixture of oil and powders may be put through a colloid mill or an homogenizer. Either of these methods should be practicable. A preliminary grinding of the color and fillers will help the product in any case, if only because it would prevent a settling of pigments and fillers out of proportion to the ratio in which they are present, because of the difference of particle size. A preliminary grinding, in order to reduce the constituents of the powder to the same particle size will reduce this tendency to a minimum.

In any product of this type, incorporation of air should be carefully avoided. Such an incorporation has a tendency to thicken the product so that it is difficult to pour or otherwise to handle. In addition, after being bottled, the gradual rise of air bubbles to the surface and the carrying with them of the powder does not produce an attractive picture calculated to attract a prospective purchaser favorably. Air may already be adsorbed to the surface of the powder particles before grinding into the oil. Forcing the air out of the resultant mixture is difficult by means of plain stirring or by heating. It is possible to obviate these operations by the addition to the vehicle before grinding of a "wetting" agent such as octyl alcohol which will so far reduce the surface tension of the powder-air phases that the air will be freed and escape almost immediately. If there is an objection to the odor of the octyl alcohol, there are similar agents which will do the same work.

A typical formula may be worked up along the following lines:

Olive Oil	75 %
Oil Soluble Preservative	0.1%
Titanium Dioxide	24.6%
Octyl Alcohol	0.1%
Perfume q. s.	0.2%

The perfume chosen should not be a very distinctive type but preferably one which is pleasant and capable of blending itself with any odor introduced from an outside source. Face powders are very often used in conjunction with make-up bases and allowances for this should be made insofar as the odor is concerned.

The liquid make-up is likely to be blamed for a number of things of which it is completely innocent. From the formula listed above it is obvious that there is a large ratio of oil to filler. The oil resting on the surface of the skin may have an effect on the face powder which is superimposed. There will be a tendency on the part of the colors in the powder to darken or else change shade due to the greater deepening of one constituent color over another. The cake make-up, though more difficult to apply, has a decided advantage in this respect, since the ratio of oil to powder in its instance is very much lower. This criticism is not meant in any sense as a generality because it is entirely possible to manufacture a face powder which will not be affected by contact with oil.

It is hoped that the ideas set forth may be of some value to the interested reader, but it is further to be stressed that since the oil make-up base has had so short a life on the market so far, it is too soon to express any permanent opinions. Much of the above has therefore been based on suppositions rather than on actual fact.

POWDER BASE: I am working on a perfume material for incorporation into powders and I should like to have the formula for a standard face powder base. Brooklyn.

A formula for a standard white base for light powders, to which color is added after suitable aging is as follows:

Zinc oxide	22.83
Talc	67.63
Zinc stearate	6.25
Precipitated chalk or magnesium carbonate	2.25
Perfume	1.04

LET'S BE VIGILANT

By J. L. RUSSELL*

In the February 5th issue of the Journal of American Medical Association there appeared an article entitled "Laxity in Wartime Pharmaceutical Manufacture." In my opinion this article invites, if not necessitates careful consideration by the drug manufacturing industry.

It does not help us one iota to say to err is human; nor does it help to point to the fact that our control burdens multiply during wartime. We can neither deny nor escape our responsibilities by any subterfuge.

Therefore, it seems well to consider some of the sources of errors. They are: 1. Assumption; 2. Ignorance; 3. Misunderstanding; 4. Inattentiveness; 5. Confusion; 6. Egotism; 7. Expedition; 8. Morale.

Assumption is one of the most troublesome sources. Everyone of you can cite a long list of errors caused through incorrect assumptions. Just because a container looks like one which contains the item you are seeking is no reason for believing that's what you are looking for. I recall years ago a rather serious accident which occurred in a little first-aid station. One of the chemists had gotten something in his eye. The first-aid attendant removed the foreign particle. He then picked up a bottle thinking it was a solution of boric acid. Without looking at the label, put some of the solution in the man's eye. Unfortunately, it wasn't a solution of boric acid; it was nitric acid, kept in a bottle identical to the one which contained boric acid. Assumption caused that error.

Just recently two people died from roach powder which was assumed to be flour. It should be a fundamental rule in all drug manufacturing operations never to assume anything. If this is preached enough, much good can come from it.

Ignorance is another common source of errors. We do not have time to give all employees a thorough education, but nevertheless there are a few things we can do to reduce the number of errors due to ignorance. Employees should be encouraged to ask questions. I don't care how asinine the question, it is most unwise to reply, "You should know the answer." Instead of belittling an employee for asking a stupid question, he should be given a pat on the back for asking it; otherwise, when the next question comes up he will be reluctant to ask it. And, it could be an important and highly intelligent one.

Another thing is to have all weighings and materials checked as they are put into operation. Checkers must be intelligent, alert and vigilant.

Misunderstanding. No doubt, many of you have a rule, "Verbal orders don't go, write them." Writing an order does help but it is not positive assurance that there will be no misunderstanding. More than ever now with replacement help—employees who are not as familiar with our routine operations—is it highly important that we make our instructions and orders perfectly understandable.

Then another source of errors comes up; inattentiveness or just plain carelessness if you prefer to call it that. Probably the least excusable of all, failure of an employee to read complete instructions; failure to keep all materials properly identified while going through manufacturing operations. The manufacture of drug products is a serious business. Every possible means should be utilized to impress our employees that our products are for the relief of abnormal conditions; that our products will afford the benefit which the consumer has the right to expect.

Confusion. This is a common source of error. It is unfortunate that there are drugs with such similar names but so different in their potency and use. Just to name a few—mercurous and mercuric chloride; aconitine amorphous and crystals; nitrates and nitrites; glycocoll and glycerole; sulfates and sulfites; phosphates and phosphites. Confusing as they may be, these are things we are expected to know. In recording any one of such ingredients it helps on formula cards to underscore the items and also to appropriately designate those which are poisons.

Egotism, or perhaps a better term is self-conceit, is an overestimate of one's own powers. He is the man who is seldom confronted with any questions. Right or wrong, he plunges ahead. The sad part is, he is convinced that he is right. Too often it takes an error well nigh to disaster to convince him he is wrong.

To this day I am frequently humiliated when I recall the first time I ever heard the word "Aspirin." I was just a young kid working in a drug store in a little town. A woman doctor came in and asked for Aspirin. I told

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Paper delivered at meeting, Western Section, Production Committee, A.Ph.M.A.

SUPPOSITORIES

By M. A. LESSER

In broad definition, suppositories are conveniently shaped, usually medicated solids for introduction into the various orifices of the body (other than the mouth) which melt at body temperature or dissolve in the mucous secretions. Thus there are suppositories for use in the rectum, vagina, urethra, nose or ear. However, from the more restricted and accepted standpoint, the term "suppository" is limited to products intended for insertion into the rectum, vagina and urethra, while those used in the nose or ear are called "bougies." These last, it should be remarked, are but little used in modern therapy.

Although Sollmann[1] says that suppositories are employed locally where ointments cannot be applied readily, suppositories actually have broader functions than this statement would imply. While it is quite true that suppositories are particularly suited for producing a local action, they are often employed to provide a systemic effect. Moreover, suppositories are intended to insure a slow and uniform diffusion of their medicinal components to those internal parts to which they are applied.[2] The exception to this rule is found in the glycerine suppository which is used to secure a prompt and effective evacuation. This action, however, is due largely to the hygroscopic effect of the glycerine upon the rectal mucosa and does not depend upon added medicinal components.

Then, too, suppositories are very useful in instances where medication cannot be given by mouth, either because the taste cannot be masked or because the drug causes gastric irritation with subsequent nausea and vomiting.[3,4] Hence suppositories are especially useful when prescribing for infants and children since they cannot swallow pills and will refuse an unpalatable mixture.

The effectiveness of medication administered by suppository depends largely upon the base used; the rate of diffusion being closely related to the vehicle employed. However, the drug itself must be very finely subdivided and evenly distributed in the base, as well as being readily available from the vehicle, if full effect is to be exerted on the tissues. As Husa[5] remarks, the drug must be in a readily absorbable form and should come into close contact with the mucosa to produce a systemic effect. When local action is needed, as in the therapy of hemorrhoids and other rectal disorders, absorption may be secondary to a prolonged and intimate contact of the drugs with a small specific area.

The therapeutic efficacy of a suppository also depends upon its retention in the orifice for which it is intended. Hence it follows that shape and size are also prime considerations in making suppositories. Rectal suppositories, the type most frequently used, are often cylindrical, tapering to a rounded point at one end and are made in sizes to meet the needs of infants, children and adults. From time to time improvements have been made in the rectal suppository shapes to facilitate insertion and secure greater retention. In one such improved, "streamlined" form, the greatest diameter is about one-fourth the distance from the tip; the diameter gradually decreasing toward the base. Such a suppository has the advantage in that, once inserted, rectal contractions cause it to move forward and simultaneously obviates the possibility of expulsion.[3,6]

Vaginal suppositories come in a variety of shapes: globular, oviform, wedge-shaped, or streamlined. Larger than rectal suppositories, those intended for the vagina usually weigh about four grams, but this varies considerably. Urethrol suppositories are long and pencil-shaped; pointed at one end to facilitate insertion. Quite thin, they vary in length from 2½ to 5 inches. Specifications for the three types of suppositories are mentioned briefly in the U.S.P. XII.

The chief materials used in making suppository bases are cocoa butter (oil of theobroma), glycerinated gelatin and sodium stearate, this last finding rather infrequent use except in conjunction with glycerine. Although glycerinated gelatin is finding increasing uses, especially for the manufacture of vaginal suppositories, cocoa butter still finds greatest employment as a suppository base, because it fills the requirements to the greatest degree. A solid at ordinary temperatures, it melts to a bland, non-irritating oil at body heat. The fact that it does not readily become rancid is another advantage. A good vehicle, it permits the incorporation of a wide variety of therapeutically-active agents.

By itself, glycerinated gelatin is too firm for use as a suppository vehicle, hence only a quantity is used to equal about one-half of the weight of the finished product; the rest of the suppository consisting of a mixture of the medicinal agent, glycerine and water. Many prefer this base because of its ready water-

miscibility and because it is particularly well adapted for incorporating solid extracts such as those: opium, belladonna, and ergot and for compounding with boric acid, chloral hydrate, iodine, iodoform, bromides, iodides, ichthyol and many other drugs.[2]

Modifications and additions to these materials have been suggested by many workers in order to improve such characteristics as hygroscopicity, brittleness, hardness, drug-carrying ability, temperature resistance and the like. Thus, to overcome some of the hygroscopicity characteristic of glycerine suppositories, Lehmann and Hediger[6] recommend the use of a combination of:

Cocoa butter	20.0 parts
Glycerine	20.0 parts
Anhydrous lanolin	0.5 part

Suppositories made with this base contain an emulsion of glycerine, but it is important that the glycerine be thoroughly shaken with the melted cocoa butter for optimal results. A somewhat similar process for making suppository bases has been patented abroad.[7]

In 1938, Ferraris[8] suggested that adding cetyl alcohol to cocoa butter offered certain definite advantages when the two were combined in the proportions of 0.6 Gm. of the alcohol to 24.0 Gm. of the butter. More recently, Rae[9] reported that a base consisting of 90 parts of oil of theobroma and 10 parts of Lanette Wax SX (a mixture of cetyl and stearyl alcohols containing about 10 per cent of phosphoric esters) permitted the preparation of suppositories containing a large proportion of liquids. With this base he prepared several suppositories, among them one containing 10 per cent of lactic acid and another containing 10 per cent ichthammol. It was also found that the addition of Lanette Wax SX greatly facilitates the incorporation of aqueous solutions with cocoa butter.

To overcome the tendency of certain medicinal agents, such as volatile oils, to soften cocoa butter bases, it is often necessary to add spermaceti or wax.[2] Beeswax and spermaceti are also employed to raise the melting point of cocoa butter bases for use during warm weather or in tropical countries. In making such additions, not only must the weather be taken into consideration, but one cannot overlook the fact that the suppositories must melt at body temperature (37° C.). The percentage range in which such additions may be made have been worked out by Jermstad and Fretheim[10]. They found that in order to raise the melting point of cocoa butter, more than 3 per cent of beeswax must be added, but if over 5 per cent is incorporated, the melting point will be above body temperature. If cocoa butter is melted with spermaceti, up to 18 per cent of the spermaceti lowers the melting point of the cocoa butter; adding 20 per cent gives a melting point practically identical with that of the pure cocoa butter, while over 28 per cent of spermaceti in the mixture raise the melting point above 37° C.

Given the problem of developing a suppository base for the tropical countries by the British Pharmacopoeia Commission, Caldwell[11] came to the conclusion that hydrogenated palm kernel oil with specified physical and chemical properties is suitable for use as a suppository base in warm countries. In cases where the base is too soft because of a high temperature or where the melting point is lowered by soluble medicaments, it may be hardened by adding hydrogenated soya bean oil (m.p. 56° C.) or beeswax. Where no soluble medicament is used, 5 per cent of hardened soya oil is satisfactory, but if fat-soluble agents are present the proportion must be raised.

In Europe, because of impending or actual shortages of cocoa butter, many attempts were made to find a substitute for this essential suppository base material. Mixtures of various oils, paraffin, higher fatty alcohols were studied by one group, which, however, suggested official sanction be obtained before trying these alternates.[12] Mixtures of animal fats, such as lard and tallow were proposed,[13] but subsequent practical experience proved that such mixtures were unsatisfactory with regard to both melting point and stability.[14] One composition, a polymer of ethylene oxide, known as "Postonal," has been reported as being quite satisfactory as a cocoa butter substitute. It is said to be quite stable, nonirritating and capable of absorbing up to 10 per cent of water.[15, 16, 17] An American patent has been granted for the use of polyethylene oxide as a vehicle for making suppositories.[18]

Of course, new materials for making suppositories have been developed from time to time. Some years ago, Bird[19] prepared the monostearic ester of a-propylene glycol for use as a suppository base. Called "Monolene," the substance is reported to have properties which make it particularly well suited for this purpose. However, it appears that the use of this and similar glycerine and glycol esters of stearic, palmitic and lauric acid are covered by patent.[20]

Other materials that have been proposed as suppository vehicles are coconut stearin, hydrogenated peanut oil, mixtures of oleic and stearic acids and a combination of 1 part of spermaceti and 3 parts of olive oil. However, as Husa[5] remarks, such substances have not won general favor.

The patent literature offers several additional and rather interesting examples of newly developed suppository bases and vehicles. Two fairly recent patents describe bases which act by absorbing water. One depends upon the use of sorbitol or mannitol stearate or similar fatty acid esters.[21] Another, more recently described solid base material for suppositories is substantially unaffected by heat at body temperature but will abstract moisture from the surrounding tissue and release a medicament in the presence of the abstracted moisture at a suitable rate.[22]

Preformed suppository shells for filling with medicament have been made from gelatin or cocoa butter, but are not used to any great extent.[2] Somewhat out of the ordinary is a patented process for making such shells from a mixture of urea and sugar plus suitable bind-materials.[23]

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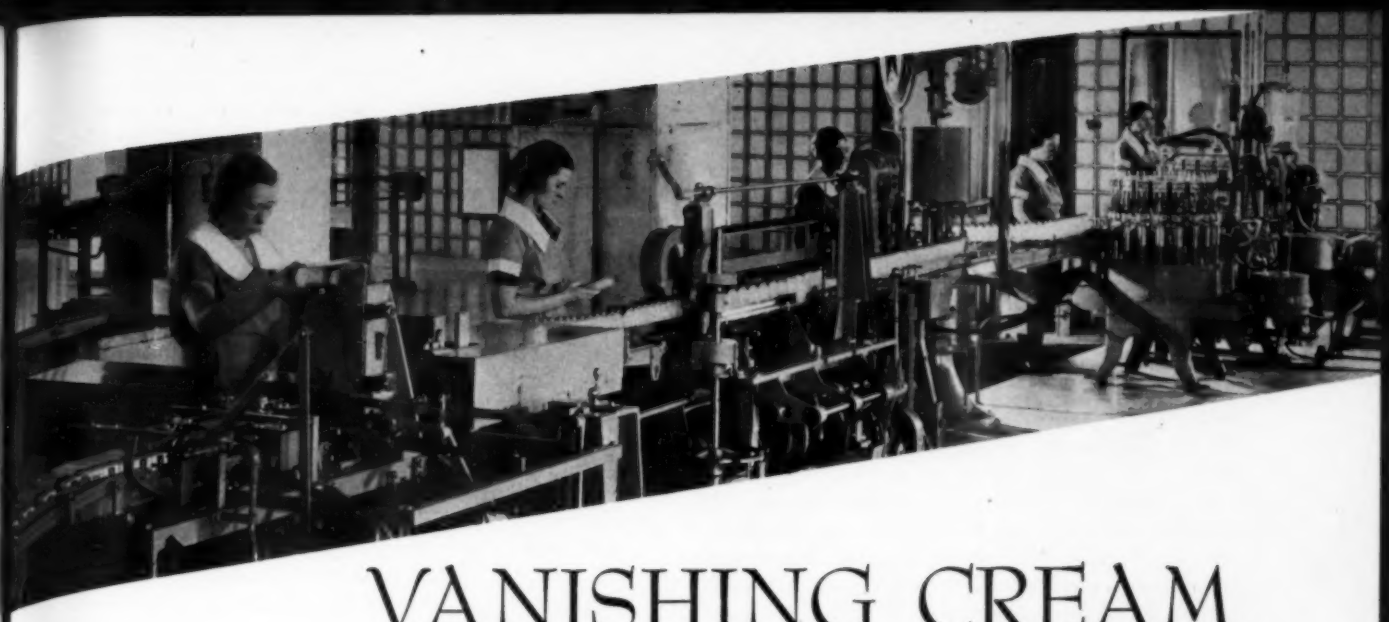

VANISHING CREAM

For many years vanishing cream has been a standard counterpart to cold cream. We believe it was in France around the turn of the century that this type of greaseless cream for day use was first invented and sold. The basic ingredients of vanishing cream are found in this old-fashioned, general type formula:

G

Stearic Acid	160
Glycerine	200
Water	629
Potassium Hydroxide	4
Sodium Hydroxide	7
	1000

The principle involved is to saponify only part of the stearic acid used. This soap then acts as an emulsifying agent between the balance of the stearic acid and the water and glycerine. For this simple and ingenious idea many products have been developed: hand cream, brushless shaving cream, hand lotion and make-up lotion all go back to the same original concept, even if the formulas bear sometimes little resemblance to the one above. Indeed, every one of its ingredients—except the water—can be replaced by something else. (Not meaning substitution in formula G but use in different formulas.) Instead of stearic acid you can use glyceryl monostearate or one of the specialties derived from it. Sorbitol can take the place of glycerine. Triethanolamine and amino glycols can serve as alkalis. Furthermore, several other products have a legitimate place in vanishing creams.

Spermaceti and cetyl alcohol in small quantities help the emulsion and make for a nice white appearance. A little mineral oil contributes to smoothness. Carbitol claims a softening effect and lanolin counteracts dryness. Endless variations are possible but it would range beyond the scope of this article to give many examples in formula style. Just one general type formula follows for a cream which seemingly is made without alkali:

H

Self-emulsifying Glyceryl Monostearate	150
Spermaceti	10
Cetyl Alcohol	20
Glycerine	120
Water	699
Preservative (Methyl Para-Hydroxybenzoate)	1
	1000

Actually the alkali part is included, because the self-emulsifying glyceryl monostearate contains soap. Sometimes this kind of product is used in conjunction with some extra stearic acid or additional plain glyceryl monostearate, which in turn are partly saponified, preferably with triethanolamine.

A vanishing cream's consistency can be adjusted in two ways. First by changing the proportion of stearic acid and/or other solids. Second by changing the alkali composition. Potassium hydroxide makes a softer soap than sodium hydroxide. Accordingly your cream will be softer or harder corresponding to your variations in the ratio of the two alkalis.

In experimentation with formula changes fails to result in the kind of product you like to have then the fault may be found not with the formula but with the procedure. Unlike the robust cold creams, vanishing creams are delicate.

Standard manufacturing practice for products following formula G proceeds like this: Melt stearic acid (and other waxes and oils, if any) in the mixing kettle and bring to 80° C. Heat the water-alkali-glycerine phase together also to 80° C., and run it gradually into the mixing kettle, with the agitator going. Keep agitating, first without cooling, then with gradual cooling of the jacket, until the cream is "done". Add perfume.

When is the cream "done"? That is the question which you only can answer after experimentation with

your formula and your equipment. The manner and time of stirring are of great importance, because the reaction is not over as soon as all of the water-phase is incorporated. It continues well afterwards and some vanishing creams need to "ripen" in vats before they are ready for filling. Others turn out best if rapid agitation is stopped when the cream is still rather warm and the mass is then turned over at intervals by means of slow stirring or by hand until it is at room temperature. It is then left in the kettle overnight and reworked briefly on the next day just before filling. In this respect the manufacture of vanishing cream is tricky and touchy.

Therefore, speed and duration of agitation should be strictly controlled for all batches, once they have been established satisfactorily for best results. Too little and too slow may cause incomplete emulsification and subsequent breakdown of the cream in jars. Too long and too fast may whip your product into such a fluffy stuff that it resembles more the cream which graces wedding cakes than the kind which is filled in jars. Incidentally, vanishing creams have to be packed when cold.

For a product according to formula H the procedure is reversed. The water phase is placed in the kettle and the melted waxes are added, with both phases at 80°-85° C.

Equipment for vanishing cream manufacture is little different from that for cold cream. The agitation, however, should be more vigorous and rapid and of a type which affords thorough mixing of the cream right down to the point of final consistency.

No homogenizing process is required, but some kinds of vanishing creams are improved by passing through an ointment mill. Here, again, it is a matter of trial and error to determine if your product gains or loses stability from such treatment.

Regarding the perfume it is necessary to bear in mind that vanishing cream is a kind of soap. Therefore the perfume oil must be stable and free from discoloration in an alkaline medium. But, even with this precaution, perfume oils generally don't hold up very well in vanishing creams. After a year or so they all turn rather stale. Approximately 0.3 per cent of perfume oil is used in vanishing creams, incorporated towards the end of the mixing process.

The standard type of vanishing cream is still a substantial item on the market, but it is losing ground to the liquid form of the same basic product. Creamy face lotions have gained much popularity in recent years. The ingredients correspond to those of regular vanishing cream, but the proportions are different.

From formula G the following general type formula can be derived as an illustration:

Stearic Acid	40
Glycerine	60
Water	895
Potassium Hydroxide	5
	1000

This, of course, is oversimplified. In order to make an up-to-date cream lotion an approach along these lines is recommended:

J

(a)	Water	905
(b)	Preservative (Methyl Para Hydroxy Benzoate)	1
(c)	Self-emulsifying Glyceryl Monostearate	40
(d)	Triethanolamine	6
(e)	Stearic Acid	14
(f)	Lanolin	10
(g)	Cetyl Alcohol	4
(h)	Mineral Oil	20
		1000

Procedure: Heat (a) to about 65° C. and dissolve (b) in it. Add (c) and stir rapidly until emulsified. Add (d) and bring the mixture to 85°-90° C. Melt (e+f+g+h) and heat to 90°, then incorporate into the water phase. Stir vigorously and continuously until cool.

There are two more basic variations of stearic acid lotion creams:

K

(a)	Water	904
(b)	Preservative (MPHB)	1
(c)	Amino Glycol	5
(d)	Glycerine	30
(e)	Stearic Acid	30
(f)	Mineral Oil	10
(g)	Lanolin	20
		1000

Procedure: (e+f+g) is introduced into (a+b+c+d) while stirring rapidly. Both phases to be at 75° C. Keep agitating until cool.

L

(a)	Water	894
(b)	Preservative (MPHB)	1
(c)	Stearic Acid	70
(d)	Lanolin	5
(e)	Mixed Sorbitol-Derivative Emulsifiers	30
		1000

Procedure: Bring (a+b) to 90° C. Heat (c+d+e) to 90° C. and introduce into the water phase while stirring rapidly. Keep agitating until cool.

Perfume oil can be added to cream lotions at the end of the run. Two per cent is a normal ratio, but, if your lotion has little odor of its own which needs covering up and your perfume oil is powerful, as low as 0.1 per cent may be sufficient.

Coloring of cream lotions is popular and easy to accomplish. Just add water-soluble-cosmetic-color solution to the batch at the same time when the perfume goes in. Homogenizing the finished product is generally supposed to improve it. This is often the case, but does not always hold true. Sometimes a homogenized lotion is less stable than the untreated product. Empirical experimenting is again the only way to decide the question if to homogenize or not to homogenize. We

(*Continued on page 428*)

Editor's Note—William Marias Malisoff is Professor of Biochemistry at the Polytechnic Institute of Brooklyn. He is the author of many scientific papers, monographs and books. Most noteworthy is his volume "The Span of Life." He is editor-in-chief of "The Dictionary of Biochemistry" and of the quarterly journal "Philosophy of Science." He carries on a consulting practice under the name of "Unified Laboratories, Inc.," General Motors Building, New York. He is a member of the Association of Consulting Chemists and Chemical Engineers, and has been consultant to a number of important firms in the drug, cosmetic and chemical field. He was the chemical expert in the trial concerning the sex hormone creams.

Sex Hormone Creams

By WILLIAM MARIAS MALISOFF

Not so very long ago the public received something of a scare concerning the use of sex hormones in cosmetic creams. This was brought about by an editorial in the Journal of the American Medical Society which warned against the use of sex hormone creams because they might "cause" cancer. This, however, logically is equivalent to saying that they might *not* cause cancer. In other words, a guess was ventured which was probably meant to raise an alarm. No direct evidence proved to be forthcoming. A bitter case was fought in which it was well established that hormones are not the cause of human cancer, the cause of cancer being quite unknown.

The surmises of the editorial were refuted since they were based on certain animal experiments having no meaning in human terms. *Enormous* doses of hormones were administered to cancer-susceptible highly inbred mice and produced tumors. Human inbreeding, between brother and sister and parent and offspring, could not possibly parallel the animal cases, and cancer susceptibility had to be of a special kind only possible with mice and rats, but not humans. The dosages, we repeat, had to be fantastic. *Where moderate doses were used there were no such effects.* There is a so-called "threshold dose" for each effect.

Suffice it to say here, then, that the cosmetic cream was shown to contain an amount of hormone so small as to be greatly below the "threshold dose" for any systemic effect, such as vaginal bleeding or growth of the breasts or of the uterus. On the other hand, a small amount of hormone was shown to enter the skin, to the extent of 10-15 per cent, and there to exercise a certain amount of stimulation while in transit. The case ended in a settlement and the cream was continued on the basis of a still smaller dose to an extensive use, without any harm having been reported for years.

Other sex hormone creams have appeared which have no record of harm of any sort. The popularity of all these creams indicates many satisfied users.

We predict that sex hormone creams will become increasingly popular. Forms may change, but the first successes were scored on night creams. An "average" sex hormone cream—and we average the few already on the market—turns out to be a night cream, made on practically any base which can be blended with a small amount of vegetable oil which is the carrier of the hormone. In a 2-ounce jar there is about 1/3 of a cubic centimeter of hormone in vegetable oil, containing 15,000-20,000 so-called International Units of Estrone. The cream has been perfumed probably on the heavy side, a departure originally made because the hormone oil smelled somewhat of horse urine (the source of the hormone). Now, the hormone concentrates have no odor, and lighter perfumes may be used.

The instructions, as to use, read somewhat like this: "Apply to neck and face, especially at folds, after a preliminary cleansing. Allow to remain over night. Use every night. A jar (2 ounces) should suffice for a month."

The advertising usually points out modestly that sex hormones, in the system and in the skin, are reduced in the aging body. The implication will be "Return this youth component to the skin."

Behind the scenes the more responsible marketers of such creams are making efforts to set up careful animal and human clinical tests to substantiate their confidence in the safety of the creams and in the nature of the effects. The effects are estimated to be local and in the general direction of creating a more youthful appearance.

Thus, it has been observed, sex hormones in artificial cultures have increased the proliferation of skin cells. A fellowship at the Polytechnic Institute of

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The Esters of Para-Hydroxybenzoic Acid as PRESERVATIVES

By C. P. NEIDIG* and H. BURRELL*

THE problem of the preservation of the many materials subject to spoilage is indeed complex. Preservatives have been used in foods, cosmetics, pharmaceutical preparations, textiles, photographic gelatin and similar materials. Some of the commonly used preservatives are benzoic acid, sodium benzoate, salicylic acid and derivatives, p-hydroxybenzoic acid and derivatives, boric acid, formaldehyde and hydrogen peroxide.

Several articles which discuss the "ideal" preservative [70, 151, 283, 341] have appeared. Gershenfeld and Perlstein[151] list the following characteristics which this theoretical preservative must have.

1. It must be effective against all types of micro-organisms causing decomposition.
2. It must be soluble in the concentration used.
3. It must not be toxic internally or externally depending upon where it is used and the concentration in which it is employed.
4. It must be compatible, must not alter the character of the preparation as far as objectionable odor, color, taste, etc., and it must be practically neutral so that it will not alter the pH of the preparation.
5. The cost of the preservative should not increase the price of the preparation to any marked extent.
6. The developed inhibiting effect must be lasting and therefore it may not be possible to depend on volatile substances, the effects of which disappear after evaporation.

These writers suggest the esters of p-hydroxybenzoic acid as being the preservative agents which most nearly fulfill the above characteristics.

The present paper is offered as an extensive bibliography and discussion of these compounds.

Theoretical studies were initiated by Sabalitschka[252, 253, 258, 259, 260, 274, 276, 286, 288, 293, 303, 305, 306, 307, 310] who was concerned with the relationship between the chemical structure and preservative action of compounds such as benzoic acid, salicylic acid and p-hydroxybenzoic acid. Comparison of the action on micro-organisms of these acids and their various esterification products suggested the following:

1. The esters of benzoic acid and salicylic acid exert weaker action than the free acid.[274, 276, 302]
2. The esters of p-hydroxybenzoic acid, on the other hand, are much more effective in their action on micro-organisms than is the free acid.[274, 276, 302]
3. The larger the alkyl group in the ester, the greater the inhibiting action.[276, 278]
4. The p-hydroxybenzoic acid esters are said to be two to three times as effective as benzoic acid in inhibiting bacterial growth.[179]

Bacterial Studies[50, 63, 66, 70, 73, 75, 81, 98, 151, 160, 303, 323]

Generally speaking, the methyl ester of p-hydroxybenzoic acid is more effective against mold, whereas the propyl ester is more effective against yeast.[50]

The table opposite summarizes the work of various investigations describing the action of esters of p-hydroxybenzoic acid on specific bacteria, yeasts, and molds.

Toxicity[23, 62, 75, 78, 87, 91, 125, 146, 147, 263, 266, 267, 271, 289, 318, 319, 332]

The most important work on the toxicity of the various esters of p-hydroxybenzoic acid was done by Schubel and Manger.[318] The esters were administered orally to cats, dogs, and rabbits. The results are given in Table 2.

These results were verified[23] by testing a mixture of ethyl and propyl p-hydroxybenzoate as compared to sodium benzoate. The lethal dose for the mixed esters was 5-6 grams per kilogram of body weight while the maximum sodium benzoate dose was 2 grams per kilogram of body weight.

Table 2

Compound	Dose—g./kg. Body Wt.	
	Toxic	Lethal
Methyl p-Hydroxybenzoate	2	3
Ethyl p-Hydroxybenzoate	4	5
Propyl p-Hydroxybenzoate	3–4	6
Benzoic Acid	1	2

Separate tests[146] run on rabbits showed that doses of 5-9 grams per kilogram of body weight of the ethyl and propyl esters produced no harmful effect. However, doses of 10-12 g. caused death in 24 hours. Rats have been tested[62] and they can take 4 grams per kilogram per day of methyl p-hydroxybenzoate without ill effects other than slightly lowered resistance.

Braccesi[75] reported that the methyl ester was innocuous to laboratory animals and humans in doses greater than

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Table 1—Action of p-Hydroxybenzoic Acid Esters on Micro-Organisms

Ester Used	Amount Required %	Organism	Nutrient	Investigator
Methyl	0.04	Aspergillus flavus and Penicillium glaucum	Syrupus sennae	66
	0.07	Penicillium glaucum		303
	0.1	Penicillium glaucum		201
	0.125	Aspergillus flavus, Mucor mucedo and Torula Yeast	Succus liquiritae	66
	0.04–0.05	Mucor mucedo	Syrupus cinnamoni	66
	0.15	Bact. fluorescens, B. coli, B. prodigiosus, Mucor and Yeast	Ungent glycerini	66
	0.05–0.15	Tubercle bacilli		75
	0.1	Escherichia coli		333
	0.125	B. coli, Proteus vulgaris and Mucor		70
	0.1		Electuarium lenitin, gelatine dura, gelatin mollis and pulpa tamarinda	81
	0.075–0.1		Malt extract	66
Ethyl	0.15	Staphylococcus aureus, Bacillus subtilis, Proteus vulgaris, a pink yeast, Penicillium glaucum and dust	Acid or basic type gelatin	151
	0.03	Aspergillus flavus and Penicillium glaucum	Syrupus sennae	66
	0.03–0.04	Mucor mucedo	Syrupus cinnamoni	66
Propyl	0.08	Aspergillus flavus, Mucor mucedo and Torula Yeast	Succus liquiritae	66
	0.05–0.1	Bact. fluorescens, B. coli, B. prodigiosus, Mucor and Yeast	Ungent glycerini	66
	0.15	Staphylococcus aureus, Bacillus subtilis, Proteus vulgaris, a pink yeast, Penicillium glaucum and dust	Acid type gelatin	151
	0.1	Escherichia coli		333
	0.05	B. coli, Proteus vulgaris and Mucor		70
Butyl	0.15	Staphylococcus aureus, Bacillus subtilis, Proteus vulgaris, a pink yeast, Penicillium glaucum and dust	Acid type gelatin	151
	0.02	Bacillus coli communis, B. lactis aerogenes, Aspergillus glaucum P. terreste and Mucor mucedo, Penicillum Expansum		160

those used in practice. One theory[87] advanced was that the toxicity of the ester would vary according to the toxicity of the particular alcohol. Since p-hydroxybenzoic acid is one-third as toxic as salicylic acid and one-half as toxic as benzoic acid,[87] the esters of the p-hydroxybenzoic acid would be less toxic than the esters of the other two acids.

Experiments with dogs and rats, subjected to injections of propyl p-hydroxybenzoate, showed no pathological changes in the liver and kidneys.[125] A mixture of 60% of the ethyl ester and 40% of the propyl ester proved non-toxic when fed to rabbits in an oil emulsion.[147]

Cremer[91] conducted tests using the esters of p-hydroxybenzoic acid with scorbutic animals. The esters were used to preserve vitamins fed to these animals. They had no effect on the vitamins. In addition, the esters produced no change in the animals' body weight, growth, blood picture, general metabolism, fertility, and hormone activity. He therefore concluded that the esters of p-hydroxybenzoic acid were ideal for preservation of products containing vitamins.

Toxicity tests have been run on a mixture of 60 parts sodium propyl p-hydroxybenzoate and 40 parts of sodium ethyl p-hydroxybenzoate.[24] The results indicate that no irregular pathological changes took place in young rats when fed at a level equivalent to 100 grams per 70 kilograms of

human weight. There was a decrease in growth rate at this high level. Use of 1-10 grams per 70 kilograms of body weight provided some evidence of growth stimulation.

Cosmetic Preservation[11, 15, 16, 19, 21, 27, 30, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 46, 47, 68, 69, 70, 73, 83, 86, 95, 96, 108, 117, 140, 152, 153, 159, 160, 198, 211, 225, 276, 281, 299, 304, 313, 323, 328, 334, 336, 341, 359, 367, 371, 374]

The esters of p-hydroxybenzoic acid are widely used in cosmetics because they possess the following properties essential as cosmetic preservatives:[70]

1. They are not perceptible either by their odor or their taste.
2. They are practically neutral.
3. They do not cause any discoloration.
4. They do not cause any deposit, hardening or muddying.

Generally speaking these esters can be used in suppositories, oils, pomades, ointments, aqueous solutions, mucilages, jellies, etc.

Mixtures of benzyl and propyl p-hydroxy benzoates are suggested for use in mouth wash, tooth powder and tooth paste.[38] Their advantage seems to lie in the fact that to a certain extent they are absorbed by the mucous membrane of the mouth, and have a lasting antiseptic effect. Other esters may also be used to advantage in mouth washes and tooth pastes.[44, 73, 108, 304]

The addition of one part of p-hydroxybenzoic acid esters to 99 parts of powders such as boric acid or zinc oxide gives a permanently antiseptic and disinfectant powder.[309] Propyl p-hydroxybenzoate and talcum or boric acid form a disinfecting powder.[270] A further innovation is the warming of these powders to 70° C. with 1-3% methyl ester or 2-6% mixed esters. This treatment renders these powders germ-free for at least two and one-half years.[270] A patent granted to Engels and Weiglard[117] claims the formation of antiseptic dusting powders by the reaction of the esters of p-hydroxybenzoic acid with sodium hydroxide, followed by addition of zinc sulfate. The resulting zinc salt is purified and dried and is used as a dusting powder.

Deakers[95] has discussed the properties and formulation of facial masks. He definitely recommends using methyl p-hydroxybenzoate as a preservative for the albumen, acacia gum, tragacanth, baraya or quince seeds.

a. *Creams*[15, 31, 152, 160, 198, 211, 313, 323, 367, 371, 374]

Varying amounts of preservative are needed dependent on the type of cream.[160] For example, 0.10% of the ethyl ester or 0.15% of the methyl ester of p-hydroxybenzoic acid should be used for non-fatty creams. For cosmetic creams, including dental creams, 0.15% of the propyl ester should be used. An aqueous solution of 0.05% of the propyl ester is used for fat-free lotions.

When glyceryl monostearate is used in the cream, propyl p-hydroxybenzoate has been recommended.[198] The use of 2.5 grams benzyl p-hydroxybenzoate per kilogram of fat tends to prevent rancidity.[371]

b. *Hand Lotions*[19, 96, 153]

Deakers[96] has recommended using the esters of p-hydroxybenzoic acid as preservative agents in hand lotions. He proposed 0.12% of the methyl ester in the aqueous phase and 0.10% of the propyl ester in the oil phase for antiseptic action. If germicidal effect is needed, the benzyl ester is suggested.

The propyl ester has been recommended as an antioxidant to prevent rancidity in the vegetable oils which are usually used in hand lotions.[153]

c. *Gums*[83, 86, 140, 296, 299, 336]

Various types of gum are widely used in the preparation of certain types of cosmetic creams and lotions. Their use is restricted by their ease of decay without adequate preservation.

Mucilage of tragacanth has been widely used by the cosmetic manufacturers and various preservatives have been suggested,[83] many of which are not satisfactory. Chloroform water, for instance, is not a good preservative since it is too volatile. However, a most suitable preservative is 0.05% propyl p-hydroxybenzoate. This ester is used because it is a stable, non-volatile preservative, active at low concentrations and also it ensures complete preservation.

Other cosmetic ingredients such as infusions of digitalis and senna, gum acacia solution and sirup of tolu were adequately preserved with 0.15% of methyl p-hydroxybenzoate or 0.05-0.08% of the propyl ester.[140]

d. *Hair Waving Fluids*[16, 21, 44, 46]

Methyl p-hydroxybenzoate has been recommended as a preservative for finger wave concentrates consisting of 93 parts powdered gum and 7 parts preservative. Karaya gum is suggested in this formulation as superior to tragacanth.[21] The most effective concentration is said to be 0.1% of the ester.[16]

e. *Soap*[37, 39, 40, 41, 42, 43, 44, 47, 225, 304, 334, 359]

Augustin[39, 44] recommends using the methyl and propyl esters of p-hydroxybenzoic acid as a preservative agent for all types of soaps. It is claimed that these esters will prevent the discoloration or deterioration of toilet soaps. The use of 0.5-1.0% of the methyl ester will impart antiseptic properties to the soap. A mixture of 0.7% of the methyl ester with 0.7% of the propyl ester gave better results with soaps than 0.2% phenol.[39] The use of 0.3% of sodium propyl p-hydroxybenzoate assures preservation of shaving soaps and gives them in addition a certain antiseptic action.[334] A patent[304] describes the use of esters of p-hydroxybenzoic acid as disinfectants in soap. A concentration of 5% of the ester is recommended.

Preservation of Pharmaceutical Preparations[1, 3, 4, 5, 6, 10, 13, 20, 22, 29, 34, 35, 38, 45, 48, 50, 51, 52, 56, 60, 61, 62, 63, 64, 65, 66, 67, 70, 71, 72, 74, 80, 81, 82, 85, 86, 88, 89, 90, 98, 101, 102, 105, 110, 111, 112, 113, 114, 116, 118, 119, 120, 121, 123, 124, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 150, 154, 156, 157, 158, 161, 165, 166, 167, 171, 172, 173, 174, 176, 178, 179, 180, 181, 183, 185, 186, 188, 194, 195, 196, 197, 202, 203, 204, 205, 207, 209, 210, 212, 219, 220, 221, 223, 228, 229, 230, 232, 233, 235, 239, 241, 246, 247, 248, 250, 251, 254, 255, 256, 265, 268, 271, 273, 276, 277, 278, 280, 285, 286, 288, 289, 292, 293, 294, 295, 296, 308, 311, 312, 315, 320, 321, 322, 324, 326, 327, 329, 331, 333, 338, 340, 342, 343, 344, 345, 346, 347, 348, 349, 352, 354, 355, 356, 357, 361, 362, 363, 364, 373, 374, 375, 376]

A constant problem with pharmacists is the preservation of stock solutions and other ingredients in their various preparations. The propyl ester of p-hydroxybenzoic acid has been proposed[277] as a harmless preservative for pharmaceutical preparations. A concentration of 0.025-0.05% is said to be effective in neutral or acid sirups, 0.075% in alkaline sirups and 0.15% in plant extracts.

Investigations[171] have shown that methyl p-hydroxybenzoate is a good preservative for aqueous drug extracts, preventing mold growth.

A concentration of 0.05% methyl p-hydroxybenzoate or 0.01% of the propyl ester is recommended as a preservative for a 1% solution of tartaric acid in water which ordinarily shows a mold growth in 24 hours.[232]

(*Continued on page 481*)

CAPS AND LINERS

By J. H. HALL*

We, the Knights of the Test Tube, grind away on the problem of making XYZ Cream. We nurse it through the beaker stage, stability tests, and the pilot plant, to say nothing of the modifications thought up by the sales and advertising departments (hope they don't see this). Finally we have evolved that luscious, fluffy, smooth, creamy, penetrating emulsification which on blind survey is preferred two to one. At this point we are reminded of our responsibility for the contents since the management wants that fresh appearance when Mrs. America makes her purchase.

The preservation of the contents from spoilage caused by factors other than abusive temperatures is definitely a task to be accomplished by closures. And of the three elements involved in closures—the glass finish, the cap, and the liner—rest assured that the liner is by far the most important in effecting a suitable seal. Tests indicate that any good, mechanically correct type of cap, be it plastic or metal with a continuous thread, roll on, or lug finish, has little to do with a weight loss curve.

The liner proper is a disc inserted in the cap and held in place by cement, friction, or a recess. It is generally made up of two components, the backing and the facing, which are properly bonded together. Both the backing and the facing have important functions in effecting a seal. The ideal facing (which has not yet been developed) should be a continuous, impervious film interposed between the cream and the backing. It must protect the product against contamination and must in no way affect the product or be affected by it. The appearance of the liner must not be marred by wrinkling or discoloration after long storage periods of the finished product, or after long storage periods of the caps alone under conditions which are often unfavorable.

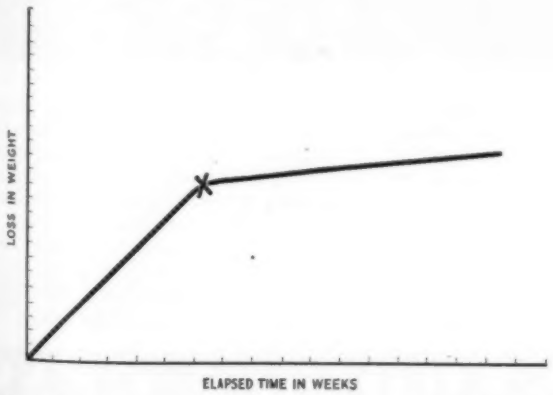
There are many different types of facings, such as waxed quality paper, vinyl resins, urea-formaldehyde resins, oleo resins of a varnish type, vinylite and latex compounds, all of which may be obtained plain or waxed. The backing, which can be cork, pulpboard, or so-called felt, must be sufficiently resilient to compensate for slight irregularities in the glass finish and to retain the original tightness of the seal against lessening of the cap pressure resulting from vibration in transit and temperature changes. The backing must also be resistant to mould growth and the development of bad odor when wetted.

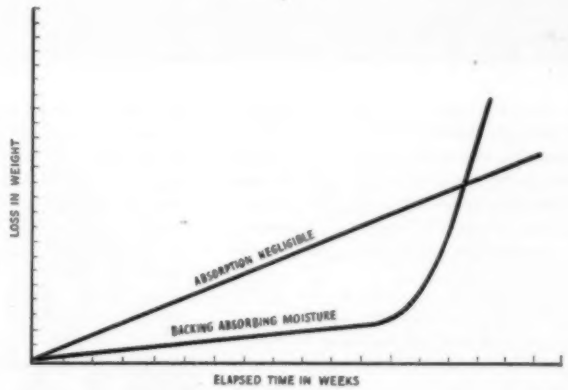
Obviously the complete liner must remain in the cap when the cap is removed from the jar. This brings up the point of whether the seal is more efficient when the liner is held in place by a recess or when it is cemented to the cap. A strong argument in favor of the free, or recess-held liner, is that when tightening takes place, the cover slippage or friction occurs on the backing, whereas with the cemented liner, slippage or friction occurs on the face of the liner so that the irregularities in the glass finish might be destructive to the liner and result in leakage.

A cap, strange as it may seem, breathes. That is to say, due to changes in barometric pressure and tempera-

(*Continued on page 478*)

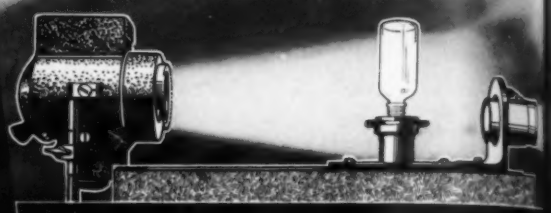
*Director of Research, Ponds Extract Co.

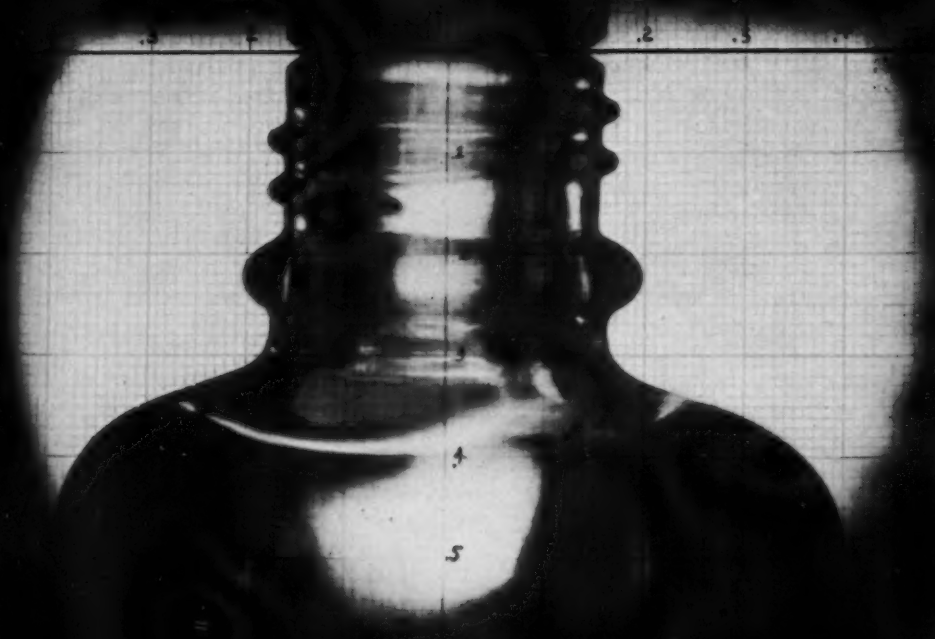




"SCREEN TEST" FOR BOTTLES

Research checks magnified detail in its constant search for better glass





TO the trained eye of an Armstrong physicist, even the smallest variation in the finish of a bottle is important. It not only may affect the fit of the closure—but, to the physicist, it may show the way to improvement in design, forming, or other steps in glassmaking.

So production development men have a double reason for wanting an accurate check on the finish of bottles. Standard measuring instruments don't provide a quick means of checking to the high degree of precision required. But a scientific "screen test," used in Armstrong's Laboratories, does.

In this test, the image of the finish, magnified ten diameters, is projected upon a crosshatched screen. The bottle is revolved on a turntable, so every part of its finish profile can be examined. By checking the magnified image against the graph lines on the screen, measurements accurate to .001 inch can be obtained!

This split-hair measurement of critical dimensions is typical of the skill with which all of Armstrong's glass research is performed. It's one reason for the high quality of Armstrong's glass, and is your assurance that this quality will be maintained.

The skill required to produce top-quality glass is further described in Armstrong's new booklet, "Men and Glass." For your free copy, write Armstrong Cork Company, Glass and Closure Div., 3804 Prince Street, Lancaster, Pa.

ARMSTRONG'S GLASS

and **ARMSTRONG'S CLOSURES**

Packaging and Selling

Lipstick Cases

If you want the world to beat a pathway to your door these days you deal in lipstick cases not in mouse traps. During the past month the cosmetic world rocked under the impact of a visit from a middle-western manufacturer who actually was seeking orders for metal lipstick cases. He came from a labor area which is now uncritical and he believed he would receive a supply of released steel sufficient to produce about seven and a half million lipstick cases. He also had some hand-made models to show which apparently incorporated some differences from the usual swivel types. He also expressed a willingness to incorporate any suggestions and improvements which certain of the largest lipstick purchasers might wish to make.

Some of the stories which got around quoted him as saying 27 million sticks and others even said he promised tooling in six weeks and delivery in eight. In our talk with him he said that he was not promising any delivery date but that all the orders were taken subject to all of the limiting factors which prevail today. We also pointed out that even with labor and steel, others had found the obstacle involved in getting tools too great to overcome. He said he knew that but expressed confidence that even this could be worked out. As a matter of fact, as this is written he still hadn't had any steel allocated to him for this purpose by Washington and there were those in close touch with the situation who expressed doubt that he would. To coin a phrase, time will tell.

In the meantime, some of the cases made from released steel are beginning to hit the market although, as predicted, in fairly small quantities. Some of the boys are so frightened by having metal cases again that they hardly dare talk about it. Others have loaned us a few so that we could have a picture taken and at least one has advertised them. That brave soul is Dorothy Gray who says, "LIPSTICKS. In metal cases again! Those lovely metal cases that work so efficiently! You can find them again, at important cosmetic counters."

Dorothy Gray
Lipsticks
In metal* cases again! Those lovely metal cases that work so efficiently! You can now find them again, at important cosmetic counters... As always, Dorothy Gray Lipstick itself is creamy-smooth... indelible as can be. In smart shades... $1 each, plus tax.
*Officially released for this use because the metal isn't suitable for war needs.
DOROTHY GRAY • AMERICAN DESIGN OF BEAUTY • 683 FIFTH AVENUE, NEW YORK 22, N. Y.

A footnote asterisked to the word metal adds, "Officially released for this use because the metal isn't suitable for war needs."

The cases do look good again after the long drought even though there are a few purists who cavil at their quality.

World of Tomorrow

We wish the boys would get together on the post-war world. On the same day that our newspaper headlined, "Scientist Caution on Kitchen Utopia" we received a handsomely illustrated booklet by Owens-Illinois on "Tomorrow's Kitchen" which certainly gave us the impression that the Kitchen Utopia was just around the corner.

On the one hand the scientists, Dr. Frank K. Schoenfeld of the Goodrich Co. said that "the nation should guard itself against pipe dreams of Aladdin-like advances immediately following the cessation of hostilities. If people are unable to use electronics instead of hired girls to run their kitchens, no great harm will be done."

On the other hand the Owens job pictured tomorrow's kitchen as a housewife's dream (in four colors, process) with electric eyes opening doors; plastic refrigerators with revolving shelves and health-ray lights; waste pulverizers which chew up garbage, cans, bottles, etc. and probably covert the result into a health-giving beverage; a cordless iron; a button window control; an air and odor-conditioning system, and a generous assortment of like wonders which made us feel like the housewife who some 20 years ago was having her first demonstration of an electric refrigerator. After the salesman got through with his long, carefully canned speech with illustrations, the woman shook her head dubiously and said, "Yes, I know, but I still don't see where you put the ice."

Incidently, the aforesaid Dr. Schoenfeld did say that because of increased use of synthetic materials salesgirls in post-war stores might use microscopes and spectroscopes in their sales talks. He also said that new packaging materials such as water-resistant papers and plastics, and new products, like dehydrated foods, might cause an upheaval in the packaging industry. He

A TOUGH WAY TO LEARN VALUES...

but the only way!

Another year of packaging achievement is starting — a period of continued development in the protective values of paperboard. Again, nearly every consumer of cartons will fit his box requirements into a pattern of utility.

Food and more food, medicines, instruments, tools, equipment will be packaged to withstand hard knocks, exposure, storage. It's tough to lose the eye-appeal, the sales-ability of multiple sizes and the extra convenience of clever cartoning. You appreciate these values more every day and you'll want to come back to them with the plus-values learned from war.

Look to the reliable material manufacturers to help you create the prize winning packages of tomorrow. But now, do your part unselfishly to pour all of our needed boxboard into the channel to victory

★ ★ ★ ★ ★ ★ ★ ★

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Schiaparelli's new Radiance lipstick comes in a dark violet plastic case with decor by Dali and carton to match. It is perfumed with Shocking.

Louis Philippe's Angel Glo is a tinted, emollient make-up base which is now being tested in the New York market preliminary to national marketing.

This transparent plastic pillbox is being made by St. Louis Plastics Moulding Co. of material supplied by Monsanto for use by the armed forces.

also reported that a new cloth-like material containing thermoplastic fiber that can be made without weaving by paper-manufacturing techniques may bring about the day when we can have new, fresh clothes whenever we wish to change our synthetic linens or send in our suits to be reclaimed.

Incidently, again, the Owens booklet also gives us a peek at the medicine cabinet of the future. Need we add that it's still the same, crowded, unsightly mess it is today. Even that bright, new world of tomorrow has its limits.

Radiance Lipstick

Like Radiance oils for body, face, eyelids and lips, Radiance lipstick sheds a faint fragrance of Shocking perfume, making identification distinctively Schiaparelli. The cognomen "Radiance" denotes a brilliant shade in a pure rose tint, devoid of either blue or yellow undertone, which may be worn by either brunette or blonde. Radiance lipstick, in a dark violet plastic case, is a smart trifle to carry around. Dali, surrealist painter is responsible for the decor. The Dali design—a pair of lips on the shoulders of tiny cherubs—is carried out on the deep violet carton.

Angel Glo

Louis Philippe is experimenting with Angel Glo in the New York market. This is a tinted, emollient make-up base which the company plans to market nationally after the New York test, and supplements the Angelus cake make-up which the company also markets. Thus far it is reported that the cake sells about three to one to the tinted liquid base.

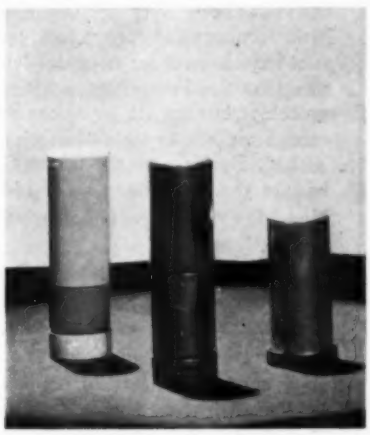
Stolen Secret

"Stolen Secret" is the name of a new perfume which is being introduced by the House of Lundborg. Stolen Secret is an intriguing, sophisticated fragrance, which comes in two sizes of perfume, to retail at $1 and $5 and one size of eau de toilette at $1.25. The new perfume is attractively bottled and packaged in simple white and black.

Cake Make-Up Remover

The Pancara Co. of Chicago, is introducing a product which seems to be a natural sequel to cake make-up, a cake make-up remover, called Pancara. It is described as a product that contains a superior cleansing agent "Pancarin," and is blended with a rich emollient cream especially prepared for the removal of cake make-up or other soiled make-up. Prediction: there will be others to follow!

Stolen Secret is a new perfume now being marketed by the House of Lundborg to retail at $1 and $5, with an eau de toilette priced at $1.25.



These are some of the lipstick cases made from released steel which are beginning to reach the retail counters although not as yet in large quantities.

Pancara Co., Chicago, appears to have the first product designed and sold to remove cake make-up although there are already rumors of others.

The Cosmetic Trend

Frequently, at the end of a season, novelty trends make themselves noticeable. Sometimes they are forgotten about. More frequently they return a season or so later with renewed strength until they grow into a real seller in another. Old hands at watching the cosmetic business have learned to observe these indicators of the future. Occasionally they are the trial balloons, sent up by a large manufacturer, or, they can be the first outcroppings of a public need that calls for satisfaction. Last year's end-of-the-season alarm were the dry cosmetics and, if buyers are right, they may be this year's bouncing baby.

The tail-end of this winter's season has not been very illuminating. Manufacturers and buyers have not found much guidance from developments on Southern resort counters; probably because there were not enough visitors to make themselves noticed. However, even so the winter has not gone by without leaving behind a few rumblings of approaching change.

Hair products have experienced an end-of-season boost; not a very strong one yet, but enough to make manufacturers of hair preparations sit up and take notice. Hair seems to be the principal war beauty-casualty. Trouble has been late in coming. But there is little doubt now of the effect of long exposure to oil and the chemical-laden atmosphere of workrooms and factories. Reports of discoloration, excessive drying or hyper-oiliness begin to multiply. Hair, hidden under protective caps, needs more care than it finds by workers, snatching their short rest. Every month that the war lasts will add to this condition and the future looks good for all types of hair preparations, including, shampoos, brilliantines, lacquers, waving lotions and reconditioners generally. Dyes, tints, and hair pencils are also going well.

Right now buyers are not overenthusiastic about the vacation outlook. Shorter and more widely spread vacations will, most probably, lead to an earlier than usual start of summer buying. So outdoor-cosmetics will go upon the counters in the early part of May and may remain there until the end of October. Outside the usual swing to darker shades for face powders, lipstick, etc. no startling developments are expected. Powder-foundation cakes may make inroads into the sale of liquids but buyers will let themselves be guided by their customers. Hampered by lack of trained personnel stores can not see how they can go determinedly behind any product these days.

Manufacturers will have to fight their own battles. A possible exception may be the various lesser known perfumes which some of the bigger stores have introduced to make up for shortages in standard lines.

Post-War Packages

Packaging has a front seat in post-war planning, a recent survey among company heads by this publication shows. While drug manufacturers, particularly the makers of ethical preparations, are showing clear signs of a livelier interest and a much broader perspective of packaging applications and materials than they did before the war, it is among the cosmetic manufacturers that post-war packaging opportunities is an endless and favorite subject for conversation.

The cosmetic industry has few new products for the post-war market. There are, as always, some new variations but, fundamentally, these manufacturers will face the post-war market with little to offer in the way of new products. But the industry has no intention of going to the retailer and the public with 1941 models when it knows perfectly well that public and retail psychology has been built up to expect a series of miraculous new things. The industry thinks it will find the answer in packaging and the plans now being considered run heavily in favor of the miracle.

By a curious twist of fate we hear that many packages which have held the line and saved countless business lives must go by the boards because they represent the period of war economy, or the unenlightened period of pre-war America when nothing was ever invented. We hear, too, that the magnificent job that paper has done in replacing metal, glass, plastics, et cetera, in so many essential places must be sacrificed because it has been identified as a substitute.

Packaging must be new, exciting, exotic, in step with the new era. It must knock the retailer and the public for a loop. It must take the wind out of electronics, television and the new model car, or if not that, it must at least be in the same mood.

Plastics, of course, are perfect for this kind of thing. We believe that so many secret things have happened in plastic development during the war that the sky is the limit in planning and designing plastic packages. Gone are all the old problems of fabrication, cost, chemical reactions, et cetera. The only problem will be in fighting off molders and in selecting which type of twenty or so plastics to use.

This can be unfortunate for the plastic industry because the letdown from many sincerely held, but fantastic ideas, will be severe. Plastics are destined to play an increasing and valuable part in packaging. The miracle boys are no friends of this industry, and this type of thinking will bring them to the threshold of the post-war market with utterly impossible plans. Tin, brass, aluminum, glass and paper have by no means tossed up their hands in despair. They intend to participate in post-war packaging, some with improvements, some on the basis of the inherent, inescapable merits of their material. There will be many new things for post-war packagers. Our guess is that each group will contribute its share.

Prescriptions Rise

The volume of drug prescriptions which normally totals about 200,000,000 a year, was more than 230,000,000 in 1943, according to Dr. E. L. Newcomb, executive vice-president of the National Wholesale Druggists' Assn. One possible interpretation of these figures is that about 15 per cent more people felt that they could afford to go to a doctor during 1943. And what with there being over 50 per cent fewer doctors to go to, that profession was, in 1943, the most overworked in the country.

Shipping Containers

The amendment of Limitation Order L-317 covering shipping containers has been issued by the War Production Board. The principal effect of the order so far as cosmetics are concerned is to reduce the percentage of permitted use for cosmetics from 65 per cent to 60 per cent; and to reduce the percentage of permitted use for dentifrices from 80 per cent to 70 per cent.

Critical Packaging Materials

The Packaging Show served once more to emphasize the fact that the war dominates everything. By far the best attended session was the one on packaging and packing for the armed forces. With well over 2000 participating in this session. The exhibit floor was also the best attended in history but here again, unless you were packaging for the armed forces there was nothing but talk of post-war possibilities in the materials and machinery displayed. Naturally, there was plenty of that.

The session on critical materials was overshadowed by the extremely critical paper situation. The question period afterwards developed the statement that there would probably be no chance of getting containers on an AA5, which, if it works out that way, makes it look very bad for cosmetics, dentifrices, shaving creams, and soaps. P147 is also on the way and it is planned to attempt to make this a control of all uses of paper for packaging and the assumption appeared to be that the rating pattern would follow that of P 146 on shipping containers.

In his prepared talk, W. L. Davis, assistant director, paperboard division, WPB, said that the V box uses about four times as much paperboard as the common box, that it's made of virgin pulp, and that its use degrades the supply and quality of waste paper since it is non-recoverable. He said that paperboard and its converted products will not be adequate to supply all requirements under the present methods of use. He added that we must recover, instead of 33 per cent, some 60-65 per cent of our paper. England is recovering better than 85 per cent.

Edward J. Detgen, acting director, containers division, WPB, laid emphasis upon eliminating frills, saying that critical materials cannot be spared for containers used primarily to serve as sales stimulants, merchandising conveniences, or advertising media. He said that sheet steel is in critically short supply and promises to remain so through the third quarter and that fibre cases for shells have not been completely satisfactory so that this has given rise to a large demand for steel for these cases. This one requirement alone will probably cancel out supplies expected as a result of the cutback in steel drum requirements. Tin is neither better nor worse, according to Mr. Detgen. Due to conservation measures, tin for cans in 1944 will be reduced about 50 per cent, against a lowered use of steel of only 20 per cent. While scrap resources contributed about 35 per cent of the 1942 tin supply, they will contribute only about 25 per cent of this year's supply, and can must be practically tinless for some time to come. At present, there is not enough steel to meet the requirements of the can order which permitted certain products to return to cans.

Robert G. Peck of the containers division, said that despite the complications in the closure picture, especially so far as materials for liners are concerned, that closures would not be a limiting factor on the number and amount of products packed in glass.

Robert Dillman, of Libby, McNeil & Libby, said that thanks to the order which permitted the return of certain products to cans, and thanks to the tremendous increase in glass production from 52,500,000 gross in 1940 to an estimated 98,500,000 gross in 1944, he believed that the backlog of orders will be gradually reduced and deliveries will be more prompt as the year goes on.

Big Business

The packaging industry, particularly the container end of it, used to be with a few notable exceptions, an industry of many comparatively modest-sized specialists. Today it has just about become an industry of a few tremendous organizations with the emphasis upon a rounded packaging picture so that the same outfit can give you glass, tin, plastics, or whatever the product and the traffic will bear. In the automobile field it finally got so that you bought either from Ford, General Motors or Chrysler. Packaging seems to be heading in the same direction.

Supremacy Drugs

Most of the talk we have heard since the announcement that Macy will have one more crack at national distribution of its Supremacy line revolves about the question of Macy's standing out of New York. The ayes have it that Macy is nationally known and respected and that both distributors and consumers will welcome the Supremacy products if they can make and save money on them. The nays have it that the Macy products are anethma out of New York both because they are Macy and because they are from New York. This would appear to remove the project's success or failure out of the realms of economics and into those of psychology.

Tax Rush

The tax rush seemed a bit slow to develop around cosmetic counters, in spite of the fact that the stores had in one way or another reminded their charge customers that although they "did not suggest that you buy anything you do not need, etc.," they did feel it was part of their service to advise customers that the tax would go into effect on April 1.

Cosmetic buyers didn't seem to agree on whether their good business was due to the tax rush or not. One said she thought she owed about 50 per cent of her business to the buying of large sizes of treatment items in advance of the tax; another said her business had been very good for months and she couldn't notice any appreciable difference. However, New Yorkers always wait to do everything the very last minute so that two or three days before the deadline did produce a "rush". As a matter of fact, reports from all over the country indicated that figures increased anywhere from 100 to 300 per cent over those of last year for the same period. Perfume, incidentally, the item which runs into money, didn't appear to be especially rushed.

Leg Make-Up

Leg make-up is bound to be popular this summer, or perhaps more popular than ever, with the stocking situation as it is. Consumers will expect great things from leg make-up preparations, and the manufacturers have been working hard to endeavor to live up to them. Even if a product was fairly good last year, it has undergone further experimentation and promises to be better this season. If directions given by the manufacturer are carefully followed, the chances are that the make-up will prove satisfactory. The streaking and coming-off-on-clothes-and-furniture faults most often heard have been pretty much ironed out. A leg preparation properly applied will not streak, and most of them are water-resistant and rub-off-resistant too. Of course, leg make-up looks best on hairless legs, and until users are educated to this very important point, there will be some complaints about leg make-up. As a rule, it is the hair that tends to cause streaks. Leg make-up applied deftly and quickly with both hands gives an amazingly smooth, mat finish—and no wrinkles. After struggling with those baggy rayons all winter it will be a pleasure to slip into some nice, smooth leg make-up!

LOOKING INTO THE FUTURE
When you think of bottles think of
Swindell
Machine made and hand made glass containers for cosmetics, drugs and beverages.
SWINDELL BROTHERS, Inc.
BALTIMORE, MARYLAND
200 FIFTH AVENUE, NEW YORK
ROBERTO ORTIZ—HAVANA, CUBA

Have We Enough Good Retailers?

Many of us may remember how, after the flush days which followed the last war had passed, the press, the forum and the smoking room raged with the argument that the wholesaler was an unnecessary middleman and that there were too many retailers.

As business men came to more secure ground, these arguments languished. Many mass distributors found out that dealing with the wholesaler was an economical way of doing business and nearly everyone decided that it was up to the retailers themselves to see how many of them could survive.

Soon we will be coming to another post-war period and that this will bring changes in distribution and new arguments on selling, few will deny. The plans which some of the leading chains already have for centralization into fewer and better stores, are one of the signposts. It is unfortunate in many ways that the question of whether there were too many retailers did not change with better times to, "Have we enough good retailers?" Surely there is a fruitful field of discussion here, one, in fact of mighty importance to many retailers who have been watching the development of department store branches, mail order retail stores, and the supermarkets of food, drug and hardware chains.

Of the sixty thousand or more retail units distributing the products of this industry, how many are really performing an active function in distribution? How many are simply inert depositories of merchandise for the extra local convenience of customers? Opinions, of course, will differ between the mass and the class distributor, and between sellers of many different kinds of products. But it should be worth asking just what should be expected from a retailer in return for the 33-1/3 or 40 per cent of list that he receives, and whether the creative retailer, who through energy and capable merchandising really stimulates and builds business for a manufacturer, should receive no favors not extended to the static retailer who drifts along in his neighborhood store, living largely by intercepting repeat orders for products originally introduced by his energetic and more capable competitor.

What makes a good retailer? Certainly from the manufacturer's viewpoint it is one who knows how to sell and has the facilities for selling. Facilities may include proper location, adequate stock, proper display, trained sales help, use of advertising and merchandising helps of various sorts. Ability to sell may include not only the urge and the energy to go after new customers, but also the ability to win that kind of recognition and prestige in his community that attracts continuous traffic to his store and lends a certain prestige to the products he displays. This kind of a retailer can not only multiply the results of manufacturers' advertising when he wants to and when he believes in a manufacturer's product and policy, but he can—and continually does—build large volume for products with little or no national advertising.

It is not too difficult to understand the mental attitude of this kind of retailer towards the others who rarely show any signs of creative sales activity and who always try frantically to scramble onto the band wagon of a great success. Is it any wonder that he thinks of these localized stores, not as competitors who shared in the expense of development, but as interceptors of his repeat business? And is it any wonder that, when a manufacturer who is dazed by an inrush of new business from many stores, fails to recognize the true significance of the new distribution and sells without plan or limit, these creative retailers toss him to the interceptor and scan the trade horizon for a new and better product worthy of their ability? That is an old, old story in trade history and should be inscribed on the tomb of many a once-good product.

The truth seems to be that many manufacturers find selective distribution, rigidly enforced, essential to a healthy secure business because, basically, there are not enough good retailers.

Saving Shipping Containers

Martin L. Jack speaking at the packaging show outlined four methods of conservation which might profitably be followed in shipping containers in addition to box and carton reclamation. These included caliper or weight reductions without impairing protective purpose which resulted in a savings in chipboard of 1/3 by his company. In many instances they were also able to reduce height of box tops in addition to reducing over-all box sizes. The number of items per box and the number of boxes per carton were also increased. Whenever possible shipping cartons were changed in shape to as near cubicle as the items packed would permit. Converting longitudinal cartons to cubicle cartons results in a saving of approximately 20 per cent.

Family Drug & Cosmetic Expenditures

A study of 1,016 industrial workers' families in ten cities conducted by Printers' Ink shows that the average costs per family group per year for perfumes and toilet waters is $5.90. On the same basis, cosmetic expense averaged $6.18 and beauty parlor expense, $21.38.

The average cost of shaving materials per year per family group was $4.97, while men's "other toilet expenses" average $3.61.

As the report points out, women of the South and Southwest advance the average sums spent for beauty parlor treatment, perfumes and toilet waters and cosmetics. Curiously enough, men in the East brought down the average of "other toilet expenses," average cost of these products being only $1.61 in the East against the average for the country of $3.61.

The average cost per family per year of home remedies, including cathartics, liniments, vitamins, etc., was $20.69 but the interesting thing about this answer was that only 129 families out of 1016 apparently got along without any for only that number gave no answer. This made it the largest group in point of numbers with the exception of women's clothing, where only 27 gave no answers.

Glass Shipped

The Glass Container Association announces that the industry shipped 94,540,000 gross, or more than 13,000,000,000 containers in 1943.

Four Billion Tablets

Combined Army and Navy requirements for atabrine during 1944 will total 4,000,000,000 tablets, according to Col. Paul I. Robinson, chief of procurement of medical supplies for the War Department. The two services will also, during the year, need half of the 10,000,000 pounds of sulfa drugs expected to be produced in this country.

Vitamin Market

In connection with the announcement of price reductions on packaged vitamins it was estimated that the retail sale of these products during 1943 represented a volume of between $175,000,000 and $200,000,000.

Chain Store Volume

With United-Whelan increasing its total merchandise sales volume by 19.4 per cent in 1943, the drug division accounted for an increase of 19.2 per cent, while the cosmetic division increased its sales by 41 per cent.

An ordinary type of container

Couldn't DO this job—

They wanted a container to *protect* a vial of orthotolidine tablets, and at the same time to serve as a water-sampler by which army drinking water could be tested for purity. If water, after adding a tablet, matched the color of a processed yellow band on the container, it was fit to drink.

so they naturally selected

SHATTERPROOF · SEAMLESS · COLORFUL

Clearsite*

This *better* protection is assured by Clearsite resilience. The desired color, *processed* directly on the container obviates the loss of color if ordinary paper labels had been used. You can PLAN your package to fit certain specific needs if you use Clearsite!

Clearsite, available in all sizes, and for a wide variety of closures, can be opaque or transparent. It is attractive as well as highly utilitarian.

●

*Reg. U. S. Pat. Off.

...Ask Celluplastic Specialists on packaging how Celluplastic advantages can help you!

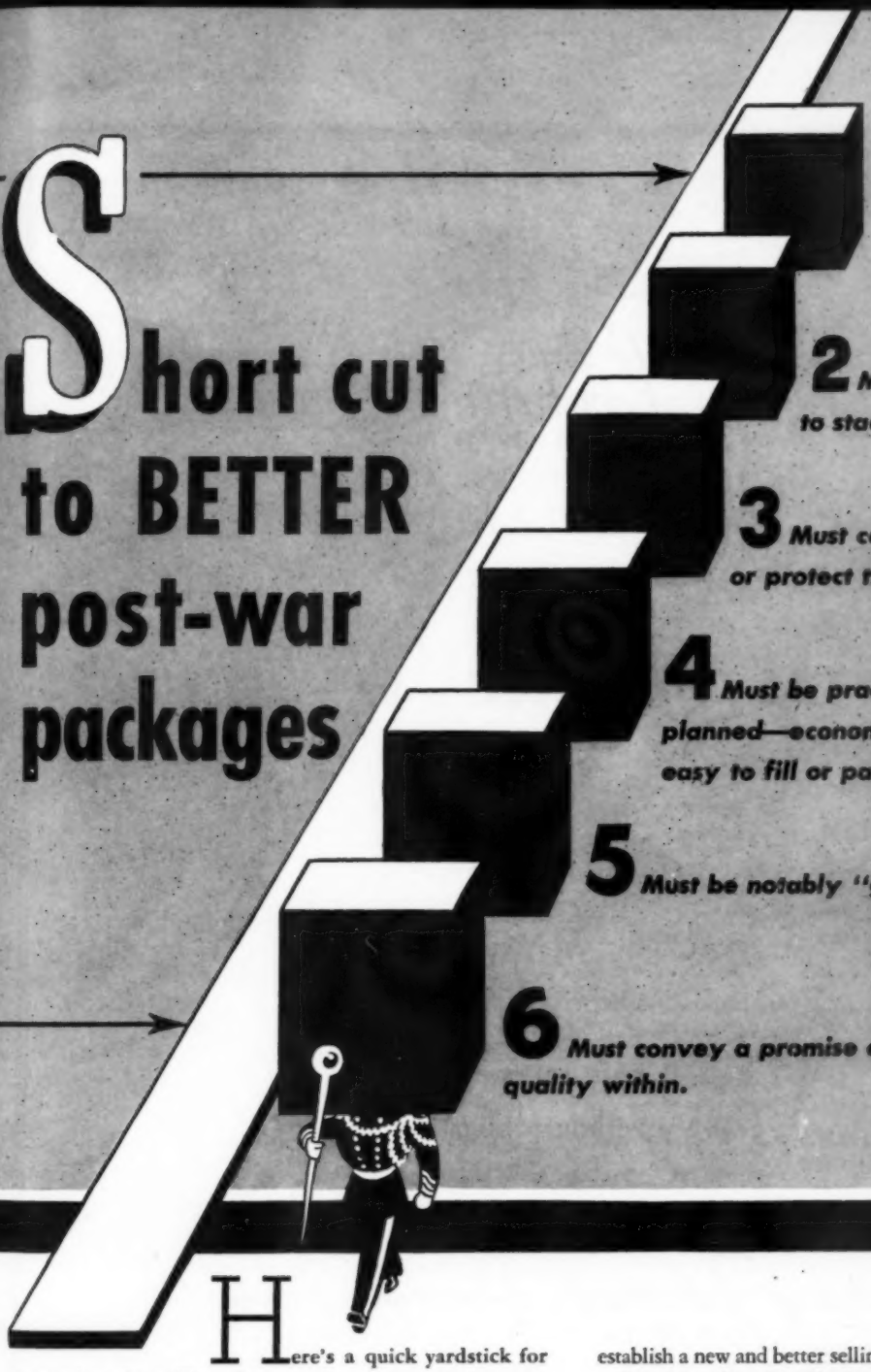
FIRST IN CELLUPLASTICS
HYCOLOID-CLEARSITE

CELLUPLASTIC CORPORATION

EXTRUSION AND INJECTION MOLDERS

60 AVENUE L NEWARK, N. J.

Short cut to BETTER post-war packages


1 It must quickly, unmistakably, identify your product.
2 Must be easy to handle, to stack and display.
3 Must conveniently dispense or protect the product.
4 Must be practical—production planned—economical to manufacture, easy to fill or pack.
5 Must be notably "good looking."
6 Must convey a promise of superior quality within.

Here's a quick yardstick for measuring the *selling chances* of your present (or contemplated) package—in hungry post war markets.

No matter what your *product* is—your PACKAGE needs *all* these qualities to help your product SELL!

Ritchie brings 78 years' *package engineering* experience (not mere "box making" ability) to the complex problem of combining all these essential qualities in a *package that sells.*

Now—with buying rationed and production restricted—a once-in-a-life-time opportunity is HERE to introduce and establish a new and better selling package—with no sales risk.

Plan Your Post-War Package Now! Let Ritchie help you and it will have the right material and structure for its job. It will be practical, convenient to use, easy to display. It will proclaim your product identity. It will be memorable and attractive. And Ritchie's expanded, war-developed facilities for volume production assure its low cost. Write us today.

W. C. Ritchie AND COMPANY
8823 Baltimore Avenue • Chicago 17
NEW YORK • DETROIT • LOS ANGELES • ST. LOUIS • MINNEAPOLIS

Set-Up Paper Boxes **Fibre Cans** **Transparent Packages**

Are You Looking Ahead?

IF YOU ARE PLANNING A
POST-WAR PROGRAM
in
METAL, PLASTIC or **WOOD**

Our complete facilities in

DESIGNING
MODEL MAKING
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at your service
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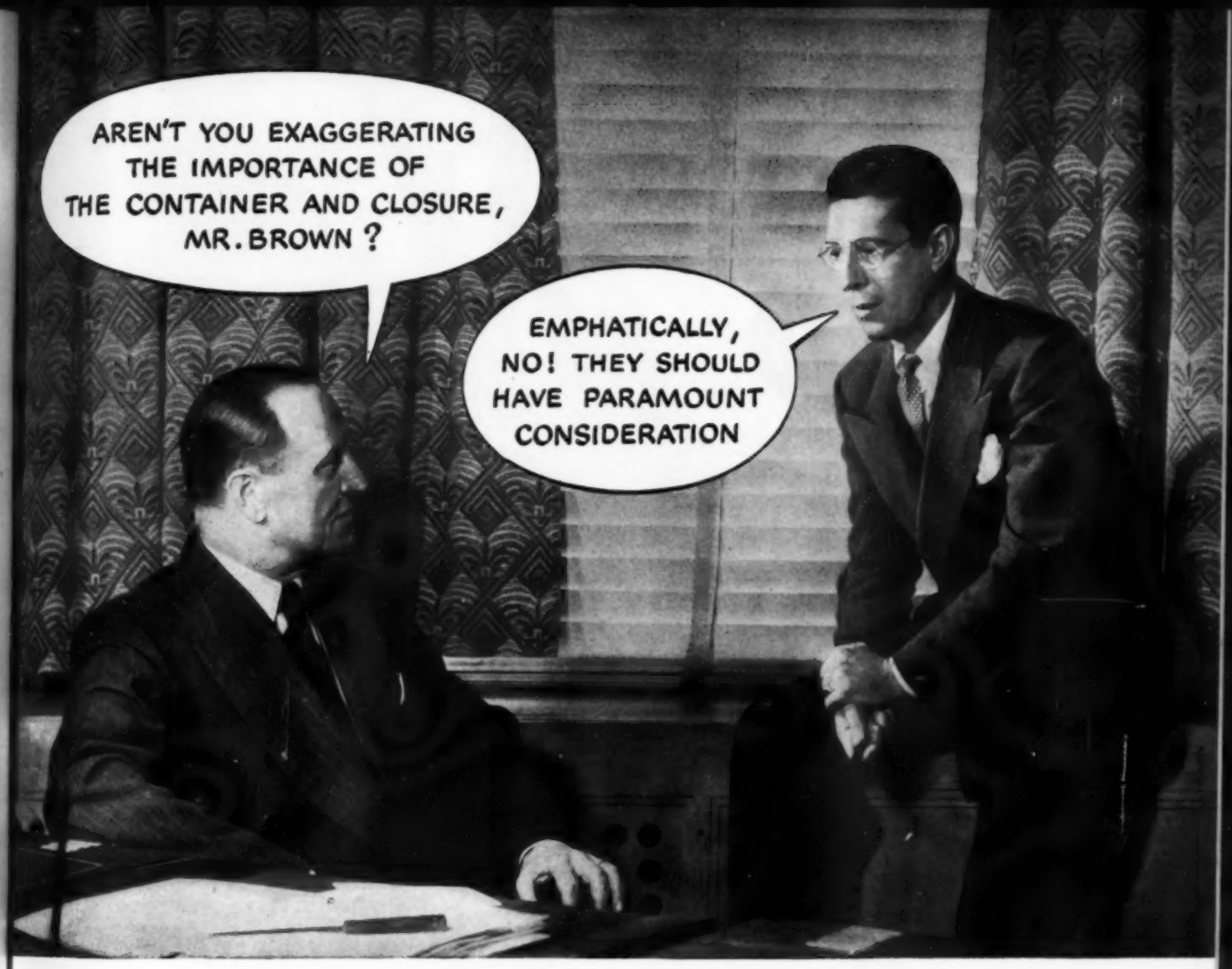

AREN'T YOU EXAGGERATING THE IMPORTANCE OF THE CONTAINER AND CLOSURE, MR. BROWN ?
EMPHATICALLY, NO! THEY SHOULD HAVE PARAMOUNT CONSIDERATION

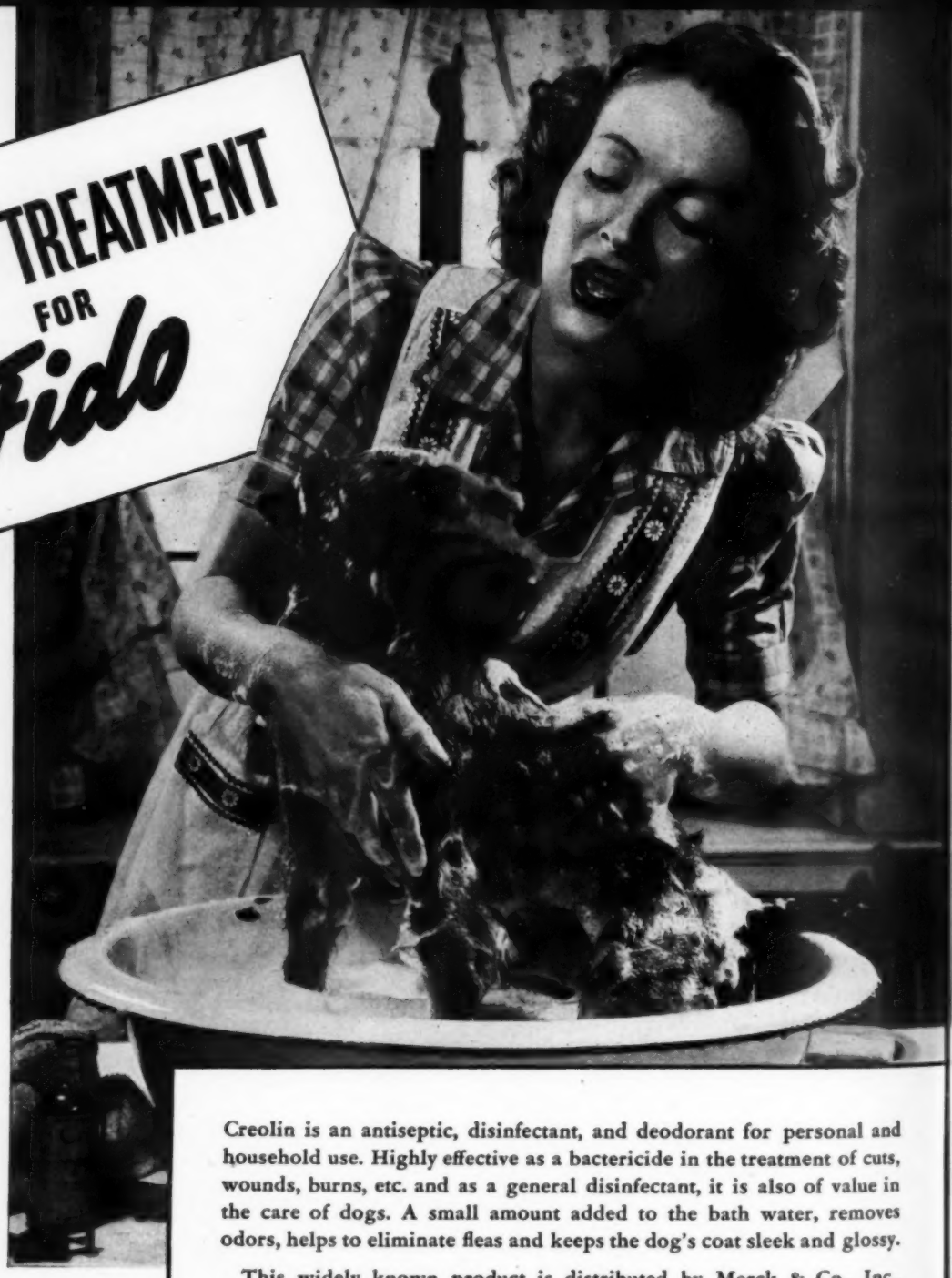
The container and closure guard your products, and, therefore, your reputation. You rely on them to bring your products to the user in perfect condition, to make the contents easily accessible, and to safeguard your products against evaporation and deterioration. Moreover, production-line efficiency demands containers with accurate capacity tolerances and finishes, hardy enough to resist production-line knocks, handling and transportation. Equally important responsibilities rest upon the closure: it should go on easily, seal perfectly, look attractive, and be easy for consumers to handle. All these qualities—ease of handling, production-line efficiency, pleasing appearance, great strength and safe sealing—are combined in Anchor Hocking containers and closures, *at a cost commensurate with the selling price of your product.*

"Meet Corliss Archer" every Saturday afternoon, entire coast-to-coast network CBS

R. B. BROWN, JR., one of Anchor Hocking's ablest and most popular men, has been a member of the Anchor Hocking family for 12 years.

ANCHOR HOCKING
GLASS & CAPS
ANCHOR HOCKING GLASS CORPORATION · LANCASTER, OHIO

BEAUTY TREATMENT FOR *Fido*



Creolin is an antiseptic, disinfectant, and deodorant for personal and household use. Highly effective as a bactericide in the treatment of cuts, wounds, burns, etc. and as a general disinfectant, it is also of value in the care of dogs. A small amount added to the bath water, removes odors, helps to eliminate fleas and keeps the dog's coat sleek and glossy.

This widely known product is distributed by Merck & Co., Inc., Rahway, N. J. It is but one of a number of Merck products securely sealed with Crown Screw Caps—the caps with the patented Deep Hook Thread which gives 50 to 100% more sealing pressure with the same amount of force.

CROWN CORK & SEAL COMPANY

CLOSURE DIVISION • BALTIMORE-3, MARYLAND

WORLD'S LARGEST MAKERS OF METAL CLOSURES

CROWN CLOSURES

Crown's Wartime Policy: *To supply closures, containers and services for packaging foods, beverages, chemicals, etc., needed by civilians and the armed forces. To build an ever-increasing volume of vitally needed weapons of war for our fighting men.*

THE ILLUSION OF QUANTITY

Trying to determine the quality of a product by the number of people employed where it is made is like evaluating a piece of music by the number of notes it contains.

Workmen in large quantity do not necessarily indicate an article of superior quality.

In the field of glass making, Carr-Lowrey has never been numbered among the largest glass manufacturers in America. But for trustworthy and completely dependable quality, Carr-Lowrey containers have long received an A-1 rating among men who know glass best.

Manufacturers of drugs, cosmetics, food or household products will find the facilities of this compact, quality-minded organization a real aid in interpreting their glass container requirements realistically, economically and dramatically!

CARR-LOWREY GLASS CO.

Factory and Main Office: BALTIMORE, MD. *New York Office:* 500 FIFTH AVENUE *Chicago Office:* 1502 MERCHANDISE MART

This month, and *every month,* Empire sends its friends "EMPIRE CLOSE UPS"—an analysis of current events, written by the eminent news-interpreter, UPTON CLOSE!

This aid-to-businessmen reflects Empire's desire to be foremost in performing helpful service . . . the progressive spirit that maintains Empire's position as a leader in the field of modern packaging.

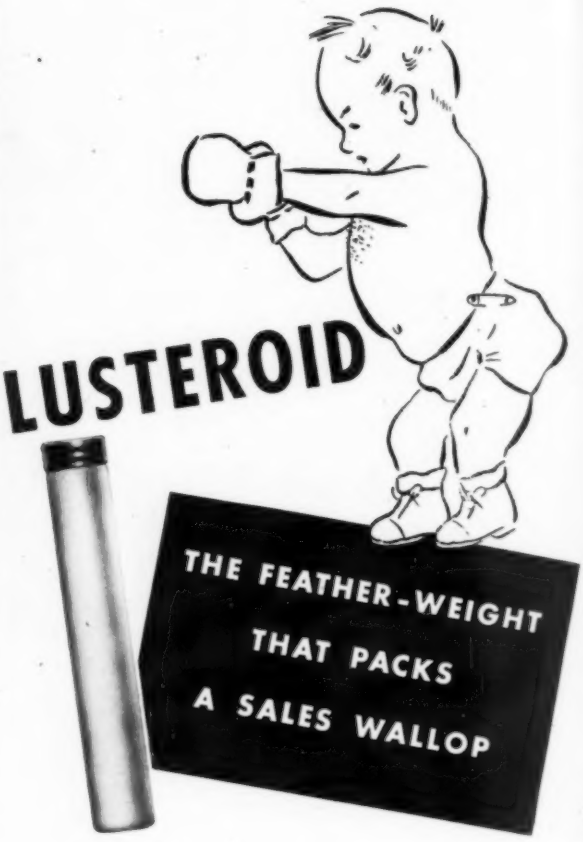
If you are a user of folding cartons, plan your post-war package requirements with Empire. And, if you are not now receiving "EMPIRE CLOSE UPS,"—write request on company letterhead.

★ *Empire* ★

BOX CORPORATION

OFFICES: GARFIELD, N. J.—PALMOLIVE BUILDING, CHICAGO, ILLINOIS
PLANTS: GARFIELD, N. J.—SOUTH BEND, IND. • *MILLS:* STROUDSBURG, PA.

LOOK TO THE FUTURE • WITH EMPIRE •



You couldn't ask for a better means of protecting and merchandising your product than LUSTEROID vials and tubes.

Here is a packaging paradox—a smart container that is unbelievably light in weight, yet so strong, rigid and unbreakable that it effectively safeguards your product right through to the consumer.

And talk about eye-and-buy appeal! LUSTEROID gives you all colors of the rainbow—clear or opaque. Your product fairly glistens in this "jewel package."

To these advantages, add the substantial savings in lower handling, packing and shipping costs and you have an unbeatable combination for post-war packaging.

LUSTEROID vials and tubes come in standard diameters from ¼" to 1¼" and lengths up to 6". Cork, slip-on or screw-cap closures. Write for complete details.

LUSTEROID CONTAINER CO., INC.

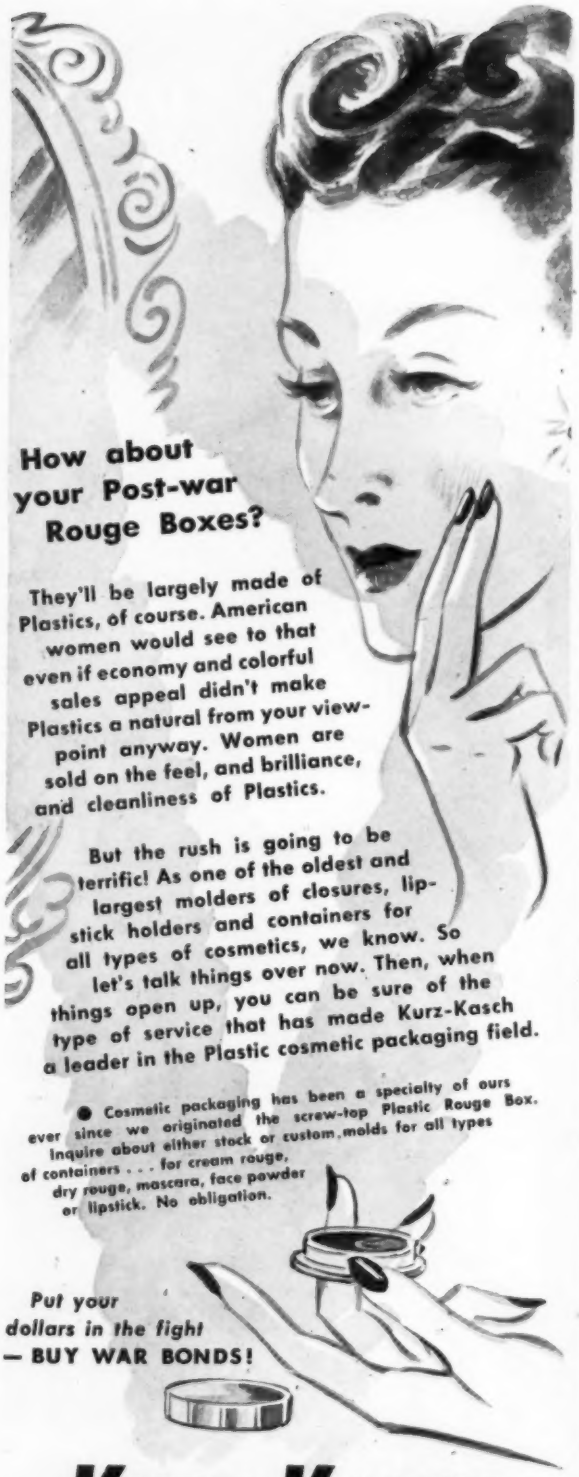
Formerly Lusteroid Division of Sillcocks-Miller Company

Office and Factory

10 W. PARKER AVENUE, MAPLEWOOD, N. J.
MAILING ADDRESS SOUTH ORANGE, N. J.

GAIR BY AIR
New York to San Francisco 17 hours—New York to Hongkong 44 hours. Distance is no longer measured by miles but by minutes. Because weight is a first consideration, Gair products play a vital part in the field of ever narrowing horizons. New merchandising methods, bringing an unprecedented need for Gair Corrugated Boxes—assure maximum air cargo at minimum tonnage.
Write for Booklet "Air Cargoes"
Save Waste Paper for war production

ROBERT GAIR COMPANY, INC., NEW YORK, Gair Company, Canada, Limited, Toronto • Folding Cartons • Boxboards • Fibre and Corrugated Shipping Containers


How about your Post-war Rouge Boxes?
They'll be largely made of Plastics, of course. American women would see to that even if economy and colorful sales appeal didn't make Plastics a natural from your viewpoint anyway. Women are sold on the feel, and brilliance, and cleanliness of Plastics.
But the rush is going to be terrific! As one of the oldest and largest molders of closures, lipstick holders and containers for all types of cosmetics, we know. So let's talk things over now. Then, when things open up, you can be sure of the type of service that has made Kurz-Kasch a leader in the Plastic cosmetic packaging field.
● Cosmetic packaging has been a specialty of ours ever since we originated the screw-top Plastic Rouge Box. Inquire about either stock or custom molds for all types of containers . . . for cream rouge, dry rouge, mascara, face powder or lipstick. No obligation.
Put your dollars in the fight — BUY WAR BONDS!
KURZ-KASCH
For over 25 years Planners and Molders in Plastics
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Branch Sales Offices: New York • Chicago • Detroit • Indianapolis
Los Angeles • Dallas • St. Louis • Toronto, Canada
Export Offices: 89 Broad Street, New York City

Vanishing Creams

(*Continued from page 406*)

dare not suggest any hard and fast rules but we venture to say that a homogenizer is not an indispensable piece of equipment for the manufacture of well formulated cream lotions. It is imperative though, to have really fast agitation in the first place, the mixing kettle. A sidewall agitator is just fine for this job.

To guard against subsequent disappointment from cream lotions, shelf-testing is as essential as for any cream, only more so. It should be extended to heat-and cold tests. Two weeks in the oven at 40° C. and two weeks in the refrigerator should tell the story. If the lotion does neither cream up (thicken) nor break down after those tests you can consider yourself on the safe side.

The cream lotions discussed here are conceived primarily as liquid face creams which serve as a base for the powder and rouge. This accounts for the absence of any formulas containing gum-mucilages, because we don't believe that gum on a woman's face does her complexion any good. We go even further and suggest that a lotion cream, containing some emollient, is indicated and should be promoted as a base under cake-make-up to protect the skin against the gums of the cake preparations.

Sex Hormone Creams

(*Continued from page 407*)

Brooklyn is continuing such studies at the present time. Clinical tests are spreading to the treatment of actually pathological skins, e.g. acne. No doubt, many interesting refinements will be forthcoming. The stakes are high—rejuvenation of the skin—and justify much more research.

Those who want to try a formula or two might try the following and perhaps talk things over with a hormone expert.

Beeswax	10.0
Spermaceti	3.0
Cocoa Butter	5.0
Lanolin	6.0
Olive Oil	30.0
Mineral Oil	30.0
Borax	0.5
Water	15.0
Hormone Oil	0.5

Beeswax	4.0	4.0
Stearic Acid	4.0	2.0
Lanolin	10.0	4.0
Cocoa Butter	4.0	....
Coconut Oil	....	4.0
Olive Oil	40.0	....
Almond Oil	....	50.0
Borax	1.0	4.0
Water	36.5	31.5
Hormone Oil	0.5	0.5

BRIDGEPORT...

For the past two years our facilities have been devoted almost exclusively to the production of war materials. We have been fortunate, in that we have been able to handle this work on the same equipment used for our regular peace time products, and, consequently, when material again becomes available for lipstick containers, vanity cases and other metal cosmetic items we will be prepared to start producing our regular line immediately. If you too are planning your post war program, we will be glad to assist you.

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CONSOLIDATED FRUIT JAR COMPANY

NEW BRUNSWICK, N. J.

MODERN COSMETICS

by

Francis Chilson

Chemist, factory manager, perfumer, owner—anyone interested in cosmetics will find this book a valuable help in business. It is a technical book, filled with formulas, procedure, manufacturing practices, yet so clearly and simply written that even one not connected with the industry can understand its text.

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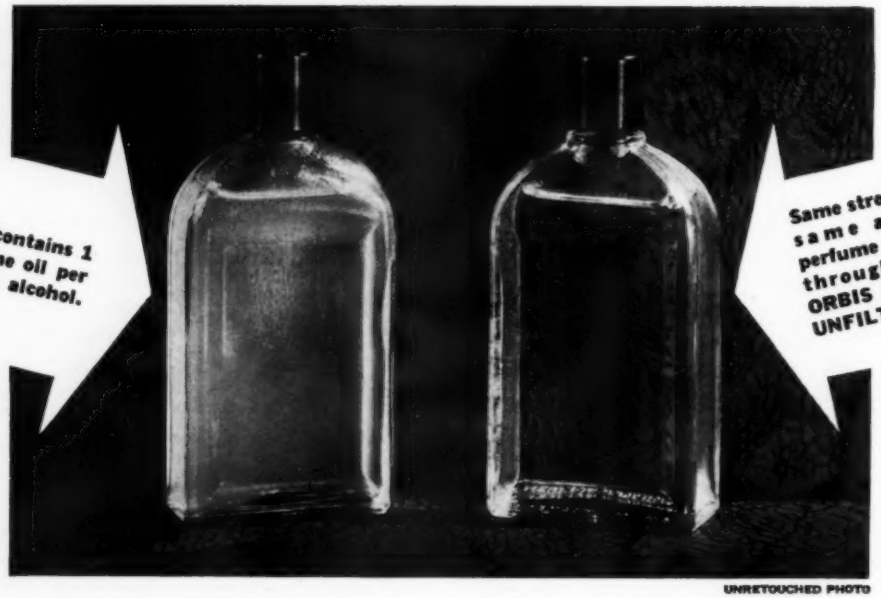
Many Manufacturers of

BAY RUM, LAVENDER, LILAC and QUININE TYPE

Tonics and After-Shave Lotions are Adopting

ORBIS ALCOH-SOLS


This bottle contains 1 ounce perfume oil per gallon of 25% alcohol.
Same strength alcohol, same amount of perfume introduced through medium of ORBIS ALCOH-SOL. UNFILTERED.

UNRETOUCHED PHOTO

BECAUSE—Alcoh-sols are perfume oils that are especially compounded to render them soluble in low proof alcohol—20 to 30%.

BECAUSE — Use of low proof alcohol stretches your limited supply of this valuable strategic material.

BECAUSE — Alcoh-sols dissolve clearly and thereby save troublesome filtration. Important because time-saving.

BECAUSE — They work equally well in specially denatured or isopropyl alcohol. Excellent coverage is imparted to the latter.

A request will bring full information about these and other odors in our full line of Orbis Alcoh-sols. They are proving acceptable to others — they will to you.

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Water Soluble Gums	Waxes	Cosmetic Raw Material	Fruit Flavors
Thymol	Stearic Acid	Oleo Resins	Food Colors
Aromatics	Essential Oils	Perfume Bases	Quince Seed
Rice Starch	Zinc Oxide French	Olive Oil	Irish Moss

NEWS

Abbott Names Two on Board

Charles S. Downs, advertising manager, and Edward A. Ravenscroft, chief

CHARLES S. DOWNS

engineer, were elected directors of Abbott Laboratories, North Chicago, Ill., at the company's annual meeting held March 30.

EDWARD A. RAVENSCROFT

Immediately following the stockholders' meeting the directors met, re-elected all officers and named Ferdinand H. Young, director of production since 1933, a vice-president in charge of production.

Colonel Currie Advanced

Lt. Colonel Howard F. Currie, commanding officer of the Army Medical Purchasing Office, New York, has been promoted to a full colonel.

Blackstead Succeeds Thiel

S. S. Thiel, treasurer and general sales manager of the Ansbacher-Siegle Corp., Rosebank, S. I., N. Y., has retired as director of the company's sales. Mr. Thiel will continue to serve as treasurer of the corporation.

Eric N. Blackstead, who has been for some time engaged in research work in the Ansbacher-Siegle laboratories, succeeds Mr. Thiel as manager of sales.

Freed with Northam Warren

Elmer Freed has been appointed sales manager of the Northam Warren Corp. He succeeds Captain Northam Warren, Jr., who is on leave of absence serving with the United States Army. Mr. Freed joined the Northam Warren sales staff in 1936. During his association with the organization, he has been in charge of sales in several major territories.

Chester H. Briggs, who has been acting sales manager, has resigned.

Rosenberger on College Board

J. Mervin Rosenberger, vice-president of Smith, Kline and French, Inc., Philadelphia, has been elected to the board of trustees of Philadelphia College of Pharmacy and Science for three years. Trustees reelected for a similar period are Dr. W. Wilson McNeary and Col. Samuel P. Wetherill, of Philadelphia, and Dr. Joseph Rosin, vice-president of Merck & Co., Rahway, N. J.

Dr. Ivor Griffith was reelected to the presidency of the college.

E. J. Farrell Advanced

Julian A. Wesseler, manager of Commercial Solvents Specialties Division, has announced the appointment of E. J. (Ned) Farrell as advertising manager for the Specialties Division with headquarters in the Commercial Solvents executive offices in New York. Mr. Farrell will work in cooperation with John N. Cronk, advertising manager.

Remensnyder Made Vice-President

B. R. Armour, president of Heyden Chemical Corp., has announced that John Paul Remensnyder has been promoted from assistant vice-president to vice-president in charge of sales. Mr. Remensnyder who has been with Heyden for twenty-four years fills the vacancy caused by the retirement of George Simon, whom he assisted.

J. P. REMENSNYDER

Stuart Smith Heads Wyeth Sales

Stuart V. Smith has been appointed director of sales, Wyeth Inc. Mr. Smith was formerly vice-president in charge of

STUART V. SMITH

sales of Reichel Laboratories, now Reichel division of Wyeth, Inc. Mr. Smith went to Reichel Laboratories in 1943 from Lederle Laboratories, Inc., which he joined in 1925, becoming vice-president and sales manager in 1935.

Carley Hawkins Resigns

Carley Hawkins has resigned as vice-president and director of Mary Chess, Inc., New York. She was married in Washington on March 16 to Allan Dawson, of the State Department, Foreign Division, and will live in Havana, Cuba.

Grove Labs Advances Israel

Lon F. Israel, for the past nine years advertising manager of Grove Labora-

LON F. ISRAEL

tories, Inc., has been promoted to "works manager." In his new capacity he will have full responsibility for production planning, inventory control, employee relations, government contracts, and operating and production costs.

Bennett Recovers from Operation

Irving Bennett, vice-president of Syntomatic Corp., has recovered from an operation on his leg which was injured in a fall.

Meyers Joins Young & Rubicam

Robert T. Meyers, formerly general sales manager of the Kolynos and Bisodol Companies of American Home Products Corp., has joined the merchandising department of Young & Rubicam, Inc. Prior to his association with American Home Products Corp., Mr. Meyers was with the R. L. Watkins Co., division of Sterling Drug, Inc.

Continental Can Advances Gray

Everett W. Gray, supervisor of credits, Continental Can Co., Inc. has been elected assistant treasurer of the company. A native of Massachusetts, Mr. Gray began his services with Continental in 1935 as an assistant on credit matters. For the past several years he has supervised Continental credit operations and, as assistant treasurer, will continue to do so, in addition to other duties under Sherlock McKewen, secretary and treasurer of the company.

Oscar Beiser Joins Naugatuck

M. G. Couderchet of Naugatuck Aromatics has announced that Oscar Beiser has joined the company. Mr. Beiser was formerly with Edwart T. Beiser Co., Inc., Stamford, Conn., essential oils and perfume materials.

C. H. Palmer Heads N.A.M. Comm'ttee

Carleton H. Palmer, chairman of the board of E. R. Squibb & Sons, has been appointed a member of the war control termination committee of the National Association of Manufacturers.

Kelly—Emerson Ad Director

John H. Kelly has been appointed advertising director of the Emerson Drug Co., Inc., Baltimore, and assumed his new duties April 15. For several years he has been head of the marketing Department of Batten, Barton, Durstine & Osborn, Inc., New York advertising agency.

Mary Frances Anderson Weds

Mr. and Mrs. George A. Anderson have announced the marriage of their daughter, Mary Frances, to Captain David Alexander Harrison, 3rd., Army of the United States, February 21, in New York. Mr. Anderson is president of Chas. Pfizer & Co., Inc.

Elected to Controllers Institute

F. P. Marsh, secretary and assistant treasurer of Southwestern Drug Corp., Dallas, and Frederick A. Platte, controller of Sharp & Dohme, Inc., Philadelphia, have been elected to membership in the Controllers Institute of America.

F. J. Solon to Washington

J. F. Solon, vice-president and director of sales of Owens-Illinois Glass Co., has joined, temporarily, the staff of the War Production Board in Washington. Mr. Solon will be away from the company and its Toledo general offices for a period of about 90 days. He began his new duties April 1.

At Washington, where he will devote his efforts primarily to container problems, he will be associated with Harold Boeschenstein, president of Owens-Corning Fiberglass Corp., who is director of the production controls bureau and acting director of the Forest Products Bureau of WPB.

Companies

Dow Opens Detroit Office

The Dow Chemical Co. opened a new office in Detroit, April 1. This is the third new office to be opened by the company within three months and brings the total of such offices throughout the country to twelve.

Walter J. Truettner, who has been active in Detroit business for the past

WALTER J. TRUETTNER

seventeen years, will head the new office. He has been actively associated with the Dow Magnesium Corp. since 1942 and has resigned his position as secretary of the Marysville plant to take over his new duties in Detroit.

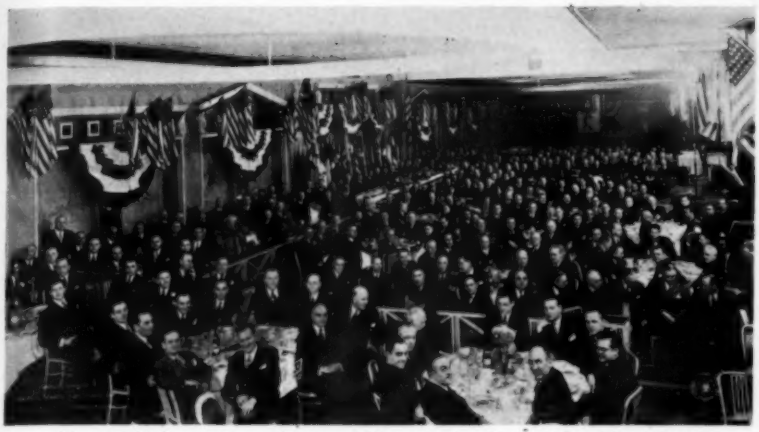
Ralph B. Ehlers, who has been with Dow for the past eight years and assistant chief engineer of Dow Magnesium Corp. since 1942, will be located at the new office in charge of magnesium distribution and service in southeastern Michigan. Other members of the Detroit office will be Paul M. Jensen, in charge of plastics, and Fielding H. Yost, Jr., in charge of industrial chemicals and pharmaceuticals.

Killeffer Joins Hazard Agency

D. H. Killeffer, long associated with the publication program of the American Chemical Society, having been successively associate and contributing editor of the society's "Industrial and Engineering Chemistry" and "Chemical and Engineering News," has joined the staff of Hazard Advertising Co., New York.

Eichhorn Made Vice-President

George C. Eichhorn, for the past six years purchasing agent for Vick Chemical Co., Greensboro, N. C., has been appointed vice-president in charge of purchasing and production, succeeding R. W. McGeachy, who has resigned.



Magnus, Mabee & Reynard's annual dinner at the Hotel Astor, New York

M. M. & R. Entertain Wholesalers

Drug wholesalers from all over the country, many principals of drug and pharmaceutical houses and thirty-four members of the trade press were feted by Magnus, Mabee & Reynard, Inc. at the Hotel Astor, New York, March 4.

Percy C. Magnus, M.M.&R. president, welcomed the more than 300 guests and introduced Charles A. Loring, president of Druggists Supply Corp., who amused the gathering with several anecdotes. Lace I. Fitschen, president of the National Wholesale Druggists Association and Dr. Ivor Griffith, dean of the Philadelphia College of Pharmacy and Science, both spoke briefly.

Dr. Hoehn Heads Breon Research

Willard M. Hoehn, Ph.D. has been appointed director of research for George A. Breon & Co., Kansas City. He received his doctorate from Iowa State College in 1936 and was research associate with the Mayo Clinic, biochemical section for three years before joining the Breon laboratories as assistant director five years ago.

Chrystal Moves in New York

The New York office of Charles B. Chrystal Co., Inc., has been moved to larger quarters at 53 Park Place, New York 7. The warehouse and mills remain in Jersey City.

American Home Advertising Changes

General reorganization of American Home Products Corp.'s advertising and public relations departments and the appointment of William M. Stedman as director of advertising and Hal W. Hazelrigg as director of public relations, has been announced by Walter F. Silbersack, executive vice-president and general manager.

Martin Labs. Explain Cold Wave

Martin Laboratories, manufacturer of "Tyo" basic chemical ingredient for cold permanent wave solutions, presented the story of this new chemical and its uses to the public, in a ceremony held Sunday, March 12. The differences between heat waving and cold waving were described by Prof. John J. Ritter.

Display of Kopal, the dental cosmetic, at the annual Greater New York Dental Meeting.

Shea Joins Emerson Drug

Hamilton Shea, formerly of Chase National Bank and more recently secretary-treasurer of TelAutograph Corp., has joined Emerson Drug Co., Inc., Baltimore, as assistant comptroller. Mr. Shea assumed his new post April 15 and will make his headquarters in Baltimore.

W. J. Bush Catalog

W. J. Bush & Co., New York, has issued a new 1944 catalog listing the essential oils, flavoring materials and food colors produced by the company. This year, in view of the troubled condition of the raw material markets all over the world, a catalog has been published instead of a price-list. Copies of the booklet are available upon request.

Schieffelin Celebrates 150th Year

This year Schieffelin & Co. is marking the 150th anniversary of the entry of the Schieffelin family into the drug business in New York, and in honor of the occasion has published an eighty-page book called, "150 Years Service to American Health."

W. J. Schieffelin, Jr., sixth generation, of fifth in direct descent from the founder has been president since 1922, and one of the principal stockholders for several years. His father, Dr. William Jay Schieffelin, for many years chairman of the Citizens Union, retired as board chairman in 1929.

Naugatuck Chemical Gets "E"

The Naugatuck Chemical Division of the United States Rubber Co. has been awarded the Army-Navy "E" for its fine achievement in the production of war material. The presentation was made April 4 at the Naugatuck, Conn., plant.

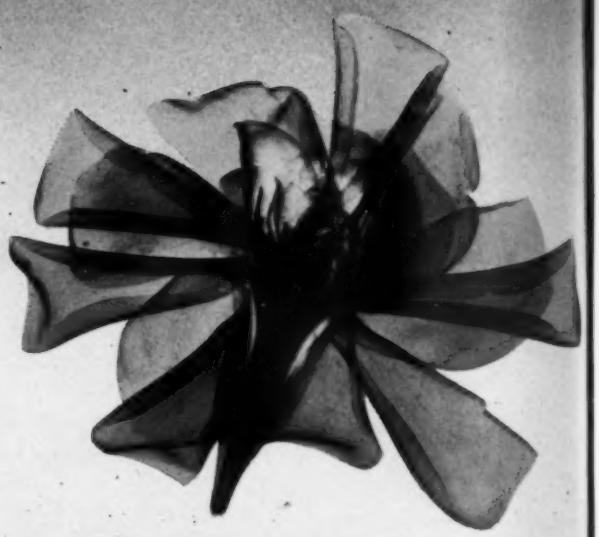
Kay Fries Chemicals Gets "E"

The Army-Navy "E" production award was presented to the men and women of Kay Fries Chemicals, Inc., West Haverstraw, N. Y., April 4, 1944. The presentation was made by Lt. Col. Charles Wayne Kerwood of the U. S. Army Air Forces and the award was accepted by J. T. Ames, executive vice-president of the company.

N. Y. Q. Gets "E"

The New York Quinine & Chemical Works, Inc., Brooklyn, N. Y., whose products have been used by the drug and chemical industries for more than half a century, has been awarded the Army-Navy "E".

A new look at the Gardenia



Actual X-Ray of a Gardenia

As searching as this X-ray of the gardenia is the laboratory method of Dow technicians. Long experience and specialized skill are drawn upon to produce Synthetic Aromatics that give cosmetics and other products added distinction and quality.

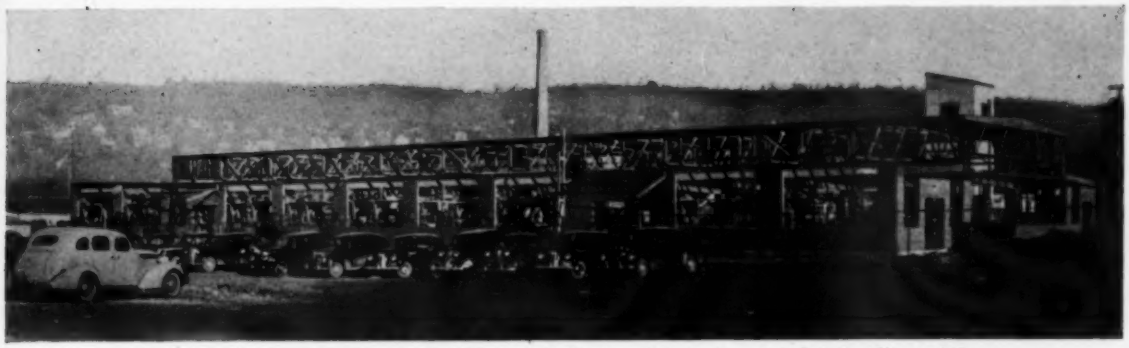
SYNTHETIC

AROMATICS

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN



New warehouse and truck loading dock at the Phillipsburg, N. J. plant of J. T. Baker Chemical Co.

Heesch Joins Gunning & Gunning

Herbert Heesch, formerly of the Heyden Chemical Corp., New York, has been appointed sales manager of Gunning & Gunning, New York.

Richard Grant German Prisoner

Richard Grant, son of Richard H. Grant, promotion manager for Houbigant Sales Corp., New York, has been reported a prisoner of war in Germany. He left the Massachusetts Institute of Technology to join the Army Air Forces the early part of 1943, and left early in December for overseas duty on a B-24 Liberator.

Fritzsche Offers Perfumers' Handbook

A Perfumers' Handbook and Catalog has been published by Fritzsche Brothers, New York, and is being distributed without charge to those who influence or control the buying of essential oils, aromatic chemicals, perfumes, and synthetics.

The book, which is cloth bound, and 268 pages, contains an amazing amount of information not found in any other single volume. The book represents the results of many years of preparation by the staff of Fritzsche Brothers. Methods of extraction of essential oils are described; botany, origin, chemical and physical characteristics are given for all types of essential oils, floral waters, aromatics, and other perfume materials.

Descriptions and suggestions for use are given for synthetic flower oils and specialties, absolute composites, compounded aromatjc bases, including perfumes for alcoholic extracts, colognes and toilet waters, creams and lotions, powders, perfumes soluble in low proof alcoholic preparations, water soluble perfumes, perfumes for miscellaneous cosmetic preparations, bath salts, hair preparations, liquid and solid incense, prefixation agents and fixatives, perfumes for soap and technical specialties.

Seydel Benzoate Booklet

Seydel Chemical Co. has just published a revision of its "Treatise on Benzoates." A feature of the booklet is an up-to-date tabulation of the various state laws governing the use of benzoates in food products. Copies of the booklet are available upon request.

Brill Equipment Moves

Brill Equipment Co., New York, machinery dealers, is moving from the quarters that it has occupied for the past twelve years to larger ones. The new offices are located at 225 West 34 St., and the new warehouse and shop is at 2401 3rd Avenue, Bronx.

Norwich-American Home Merger Off

The proposed merger of the Norwich Pharmacal Co. and American Home Products Corp. has been abandoned, it has been announced by Frank L. McCartney, president of Norwich Pharmacal and Knox Ide, president of American Home Products.

Continental Can Officials

The board of directors of Continental Can Co., Inc., held a meeting March 29 at which the following officers were reelected: Carle C. Conway, chairman of the board and president; Sidney J. Steele, vice-chairman of the board; Frank J. O'Brien, vice-president; John B. Jeffress, Jr., vice-president; J. Sydney Snelham, vice-president and comptroller; Jacob F. Egenolf, vice-president in charge of manufacturing; Wendell H. Funderburg, vice-president in charge of sales; Eugene J. O'Connor, vice-president; Paul E. Pearson, vice-president in charge of equipment development and research; Sherlock McKewen, secretary and treasurer; Ralph H. Alexander, assistant secretary and assistant treasurer; Loren R. Dodson, assistant secretary; Everett W. Gray assistant treasurer.

Dr. Sodern Joins White Labs.

Dr. C. W. Sondern is now associated with White Laboratories, Newark, N. J. He was formerly director of research for George A. Breon & Co., Kansas City.

Heyden Plants Get "E"

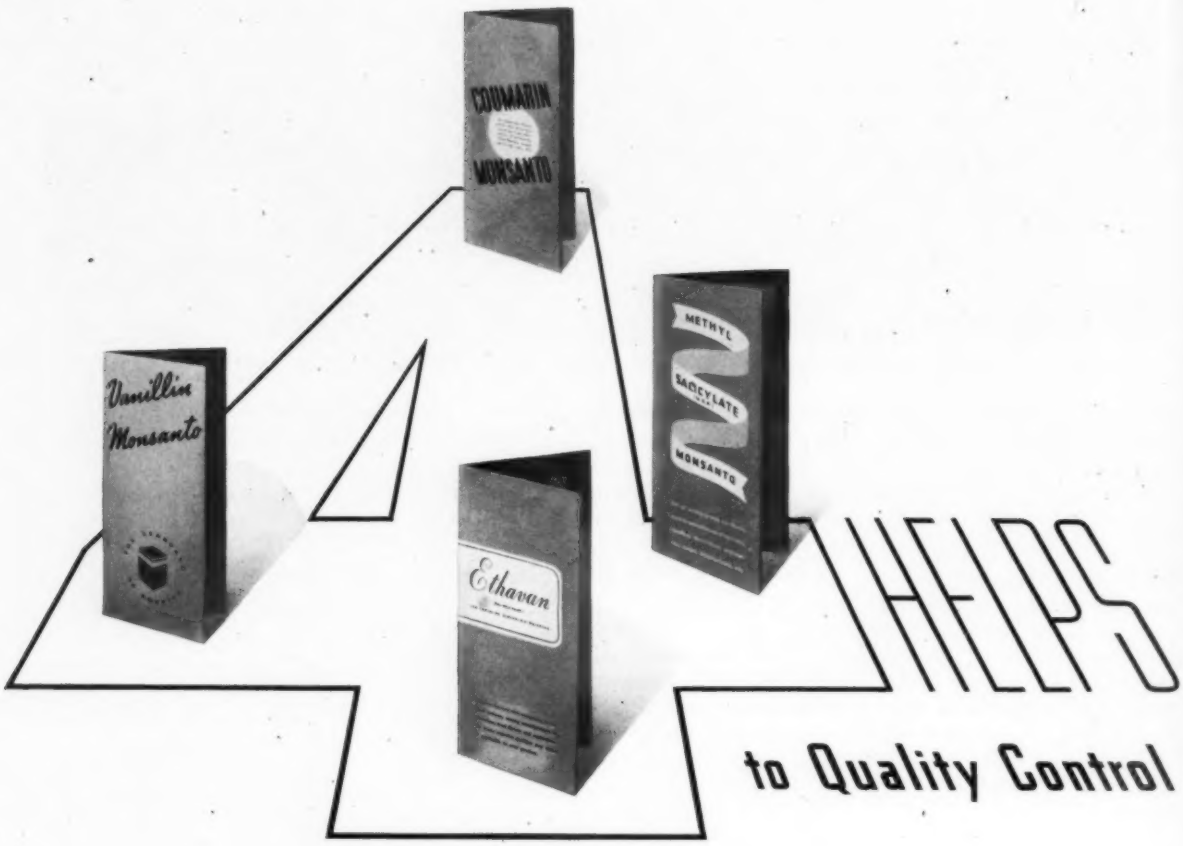
The Garfield and Fords plants of Heyden Chemical Corp., both located in New Jersey, were the scene March 28 of Army-Navy ceremonies at which "E"s were awarded to Heyden employees for excellence in war production.

Major General Charles T. Harris, Jr., commanding general, Aberdeen Proving Ground, Md., and Lt. Com. Leonard R. Woods, U.S.N.R., represented the Army and Navy at the ceremonies. At the Garfield plant the award was accepted by Bernard R. Armour, president of the company, and Edward J. Bergen, representing the Garfield employees. At the Fords plant the acceptance was made by Mr. Armour assisted by A. Hoppert, for the Fords employees.

Monsanto Buys I. F. Laucks

I. F. Laucks, Inc., of Seattle, manufacturing chemist and producer of plywood glues has been acquired by Monsanto Chemical Co., St. Louis, it has been announced jointly by Charles Belknap, president of Monsanto and H. P. Banks, vice-president and general manager of I. F. Laucks, Inc.

Through the transaction Monsanto will acquire the two Laucks plants in Seattle and other company interests at Vancouver, B. C., Los Angeles, Portsmouth, Va., Lockport, N. Y., Stanbridge, Que., and interests which Lucks holds in companies in Australia and Sweden. No changes in the Laucks operating personnel are contemplated. The officers are I. F. Laucks, president; Harry P. Banks, vice-president; and Leo W. Eilertsen, secretary and treasurer.



HELPS to Quality Control

HERE are four food ingredients in which you can be certain of uniform, high quality— even in these hectic days.

Despite wartime pressure for more and more production, *every* batch of each of these four Monsanto flavors is rigidly controlled at *every* step in their manufacture. *Every* batch is then double checked by skilled and highly trained analytical chemists in our control laboratories before it leaves for your plant. Add to those safeguards, the fact that each of these four Monsanto flavors is made largely from raw materials produced within Monsanto's own plants under equally strict controls . . . and you can see why Monsanto flavors are known throughout the food industry for *uniform* high quality. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Los Angeles, San Francisco, Montreal, Toronto.

MONSANTO
CHEMICALS
SERVING INDUSTRY...WHICH SERVES MANKIND

Wax Bulletin

A new technical bulletin, "Waxes for Today and Tomorrow," has just been issued by Distributing & Trading Co., New York. The bulletin was planned to provide a ready reference for manufacturers who have had to turn to substitute waxes because of the shortage of many mineral and vegetable waxes.

The booklet lists thirty-six different kinds of waxes together with their specifications, and current prices. Copies are available upon request to Distributing & Trading Co., 444 Madison ave., New York 22.

All United Drug Manufacturing to St. Louis

United Drug Inc. reports for 1943 a net profit of $2,610,650 against $2,301,-230 in 1942. Sales for the year were $138,913,407 as compared with $121,-997,977 the year before.

It has also been announced that all of the company's drug manufacturing activities which have been divided between Boston and St. Louis will be consolidated in St. Louis. The company also has plans for remodeling stores to meet competition, remodeling of factories, absorption of war material surpluses, and expansion of the laboratory research and ethical products development.

Synthetic Menthol Book

Givaudan-Delawanna, Inc., has published a 238-page book on the subject, "Synthetic Menthol." In it an effort has been made to present all the major scientific literature dealing with the toxicity and the pharmacological value of menthol and its isomers. Because it was not wished to depart from the original literature, the German articles have been published in that language.

The book contains introductory remarks by Dr. Eric C. Kunz, president of Givaudan-Delawanna, Inc. All of the material was revised by Dr. Alfred Ofner, Givaudan-Delawanna research chemist; each paper has been summarized by Dr. Kurt Oesterreich and the book was prepared for publication by Edward Sagarin of the editorial staff of Givaudan-Delawanna, Inc.

Associations

Pharmacy Promotion Committee

An action program to carry to the public authentic information on the contribution of pharmacy and the drug industry to the health and well-being of the nation has been launched by the National Pharmacy Committee on Public Information. The all-industry committee sponsoring the program is composed of: James C. Chilcott, president of the Maltine Co.; John Dargavel, executive secretary of the National Association of Retail Druggists; Walter G. Baunhoffer, president of the United Cigar-Whelan Stores Corp.; Dr. E. F. Kelly, secretary of the American Pharmaceutical Association; Robert A. Hardt, director of product development, E. R. Squibb & Sons; George Van Gorder, executive vice-president, McKesson & Robbins, Inc.; and E. Walton Bobst, assistant to the president, Hoffmann-La Roche, Inc., who is chairman of the committee.

National Pharmacy Committee on Public Information which has opened offices at 620 Fifth Ave., New York. First Row—Dr. E. F. Kelly, John W. Dargavel, George Van Gorder. Second Row—Robert A. Hardt, Walter G. Baumhogger, James C. Chilcott, E. Walton Bobst.

Hildebrandt Heads Chicago Assn.

The Chicago Drug & Chemical Association held its 44th annual meeting on March 30, and the following officers

F. DEAN HILDEBRANDT

were elected for the coming year: F. Dean Hildebrandt, Hildebrandt & Co. was elected president; Harry E. Dunning, Albert Verley & Co., vice-president; Martin B. Vance, Givaudan-Delawanna Inc., secretary; and Edgar E. Brand, L. Sonneborn, treasurer.

Van Allsburg Heads Mich. Assn.

Newly installed officers of the Allied Drug and Cosmetic Association of Michigan are: president, E. E. Van Allsburg, Ecclestone Chemical Co.; vice-

E. E. VAN ALLSBURG

president, Gordon Buck, Standard Oil Co., Indiana; secretary, Maison G. deNavarre, Maison G. deNavarre Associates; treasurer, Stewart Cowell, J. T. Baker Chemical Co. Members of the executive committee are: William M. Russell, Monsanto Chemical Co.; A. R. Vicary, Mark W. Allen Co.; A. S. Bedell, Beauty Counselors, Inc.; Donald Melville, Frank W. Kerr Co.

Derby Addresses Chem. Salesmen

Harry L. Derby, president of the American Cyanamid & Chemical Corp., New York, addressed the Salesmen's Association of the American Chemical Industry at a luncheon, March 30.

Kolmar also serves.....

while some of our folks are serving the colors those who remain are carrying on .... supplying as best they can the peace time needs of the industry and at the same time making a serious contribution to the war effort.

Kolmar is fighting on both fronts ... the home front and the war front.

Manufacturers of Private Brands only

Rouge Powder Lipstick

Milwaukee, Wis. Port Jervis, N. Y.

Representatives

Mr. M. C. Boyd,
Quinby Building, Newark, N. J.

Mr. Douglas Haggerty,
122 E. 42nd St., New York City

Mr. Warren Curry,
2504 Alton Road, N. W., Atlanta, Ga.

Mr. Norman Kole,
980 Merchandise Mart, Chicago, Ill.

Mr. R. F. G. Byington,
1260 N. Western Ave., Los Angeles, Cal.

Mr. Richard F. Spicker,
419 West Fifth St., Cincinnati, Ohio

Pharmaceutical Foundation Elects

A fund of $100,000 to finance aid to colleges of pharmacy whose income from tuition and other sources has been drastically cut by the wartime decline in enrollments was voted by directors of the American Foundation for Pharmaceutical Education at its annual meeting in New York, April 4.

The allotment will come out of the $421,925 in contributions to date reported by S. B. Penick, Sr., treasurer of the foundation. An ultimate objective of an invested fund of $5,000,000 to finance the foundation's work for the purpose of promoting pharmaceutical education was suggested by George V. Doerr, president of the foundation and vice-president of the Minneapolis division of McKesson & Robbins, Inc.

At the annual meeting of the foundation preceding the meeting of the directors, resignations were accepted from Harry C. Noonan, representing the American Pharmaceutical Manufacturers Association, and Charles H. Evans, representing the American Pharmaceutical Association. Mr. Noonan is now retired and living in Phoenix, Ariz., and Mr. Evans reported his inability to attend meetings regularly. Vacancies also developed as a result of expiration of the terms of Dean Ernest Little of the New Jersey College of Pharmacy, representing the American Association of Colleges of Pharmacy and Mr. Penick, representing the American Drug Manufacturers Association.

The by-laws were amended to place on the board a representative of the National Association of Chain Drug Stores and Dean Little and Mr. Penick were elected directors for a five-year term; Fred A. Lawson, the E. L. Patch Co., Boston, was elected to fill the unexpired one-year period as representative of the American Pharmaceutical Manufacturers Association, and George A.Moulton of Peterboro, N. H., president-elect of the American Pharmaceutical Association, to fill the unexpired one-year term as the representative of his group. Fred J. Griffiths, executive secretary of the National Association of Chain Drug Stores, will represent his organization for a five-year term.

B. V. Christensen of the College of Pharmacy at Ohio State University, by virtue of being chairman of the executive committee of the American Association of Colleges of Pharmacy, automatically becomes a member of the board and it was voted to make Dr. Frederick J. Cullen, executive vice-president of the Proprietary Association of America, an honorary member of the foundation.

All of the officers of the foundation were re-elected as follows: president, George V. Doerr; vice-president, C. S. Beardsley; secretary, E. L. Newcomb; treasurer, S. B. Penick, Sr. Dr. Robert L. Swain, Dean Little and Hugh P. Beirne were elected members of the executive committee to serve with the officers of the foundation, and James F. Hoge was again named counsel.

Stock and Fischelis to be at Proprietary Meeting

Fred Stock, chief of the drugs and cosmetics section of the WPB chemicals branch, and Robert P. Fischelis, chief of the medical and health supplies branch of the Office of Civilian Requirements, will be among the speakers at the 62nd annual convention of the Proprietary Association of America, which will be held at the Biltmore Hotel, New York, May 15-17.

Mr. Stock will discuss supplies and Mr. Fischelis will give a resume of the work of his branch, with an indication of the future outlook for the proprietary industry.

Another feature of the program for the convention is a meeting of manufacturers interested in the alcohol problem. The scientific section will hold its first 1944 session; the veterinary section will have a round table discussion and there will be a session on foreign trade. The advertising clinic will meet May 16.

Missouri Association Elects

The Associated Drug and Chemical Industries of Missouri held its annual meeting March 8 at the Coronado Hotel, St. Louis, and re-elected the following officers: president, Morton Meyer, Thomspon-Hayward Chemical Co.; 1st vice-president, Franc Barada, Fritzsche Brothers Inc.; 2nd vice-president, Paul A. Hein, Mallinckrodt Chemical Works; 3rd vice-president, Morton S. Johnson, Solvay Sales Corp.; secretary, Charles E. Caspari, Jr., Monsanto Chemical Co.; and treasurer, J. Louis Lanz.

DCAT Gives $1,000 to Red Cross

Members of the executive committee of the Drug, Chemical and Allied Trades Section of the New York Board of Trade voted to donate $1,000 from the proceeds of the annual dinner to the American Red Cross.

Volk Heads Atlanta Club

At its second annual meeting held at the Robert Fulton Hotel, members of the Atlanta [Drug & Chemical Club chose the following officers for the coming year: president, W. A. Volk; vice-president, H. G. Reilly; treasurer, E. E. Bengston. The position of secretary, held at present by R. D. Rainey, will be filled at the next meeting. Elected to the board of di ectors were: J. C. Bagwell, E. D. Crane, George R. Fellows, W. R. Cranberry, Fred Lewis and J. W. Renshaw.

A.D.M.A. Meeting

May 1, the first day of the annual convention of the American Drug Manufacturers Association at Hot Springs, Va., will be devoted to section meetings.

At the first general session May 2 the speakers will be Lieut. Colonel Ralph R. Patch, Sn. Corps, Office of the Surgeon General of the Army, and Fred J. Stock of the War Production Board.

The second general session, May 3, will be devoted to "Progress in Medicinals and Military Medicine." It will be in charge of Major General George F. Lull, the Deputy Surgeon General of the Army. Addresses will be made by C. C. Hillman, Brigadier General, U. S. Army, Chief, Professional Service, Office of the Surgeon General—"Observations of Chemotherapy in the Army;" by Erik G. Hakansson, Captain (M.C.) USN, Naval Medical Research Institute, National Naval Medical Center—"Present and Future Control of Tropical Diseases;" by Leonard T. Peterson, Colonel, Medical Corps, Surgery Division, Office of The Surgeon General—"War Injuries;" and by W. M. Craig, Captain (M.C.) USNR, Chief of Surgery, U. S. Naval Hospital, National Naval Medical Center—"Medical Subjects."

Speakers at the third general session which will be held May 5 will be: John C. Baker, associate dean, Harvard University—"Needed—A Philosophy of Business;" Francis H. Russell, chief, World Trade Intelligence Division, State Department—"Some Economic Weapons in Total Warfare;" Dr. Morris Fishbein, editor, The Journal of the American Medical Association—"The Distribution of Medical Care."

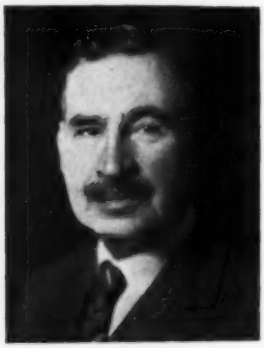
Institute Medal to Willard Dow

The gold medal of the American Institute of Chemists for 1944 will be awarded to Dr. Willard H. Dow, president of the Dow Chemical Co., Midland, in New York, May 13.

Obituaries

B. M. Douglas

Bernard Martin Douglas, Sr., dean of the cosmetic industry and vice-president and a director of Bourjois, Inc., and Chanel, Inc., died March 16. He was seventy-six years old. Born in Richmond, Va., he moved to Brooklyn when



B. M. DOUGLAS

a boy and started his business career with George Borgfeldt & Co., becoming manager of the Chicago office in 1896 and subsequently head of the company's cosmetic division.

In 1917 he founded the New York agency for A. Bourjois et Cie., which agency was later succeeded by Bourjois, Inc. He was also a director of R. B. Semler, Inc., and had been a vice-president of the Perfumery Importers Association.

Since March 1941 he had been a lieutenant colonel attached to the staff of the Adjutant General's Office, N. Y. State Guard. He enlisted in the National Guard in November, 1917, and was with the 22nd Engineers, Company F. Commissioned as a second lieutenant in August, 1918, he was promoted to first lieutenant in October of that year and was made captain in September 1920. He acted as adjutant to the 27th division Special Troops. In September, 1931, he was retired as major.

Charles W. Brown

Charles W. Brown, manager of the Chicago branch of Innis, Speiden & Co., New York, died in Chicago March 15. He was sixty-three years old.

Mr. Brown was born in Crandall, Texas, and had been associated with Innis, Speiden & Co. since May 1, 1907. Throughout this association he was active in the Chicago and middle west territory.

Charles L. Bird

Charles L. Bird, since last August the general manager of McKesson & Robbins' Groover-Stewart Division in Jacksonville, Fla., died suddenly March 14. He was forty-nine years old.

Thomas M. Finney

Thomas M. Finney, cosmetic manufacturer, died in Los Angeles recently. He was seventy-three years old and founder of the California Cosmetic Association.

George Sheppard Bacon

George Sheppard Bacon, retired general superintendent of the Armstrong Cork Co. glass plant at Millville, N. J., died at his home in Millville, March 9, after suffering a slight stroke of paralysis a few days previously. He was in his eightieth year.

Charles Franklin Miles

Charles Franklin Miles, director of Miles Laboratories, Inc., Elkhart, Ind., died February 23. He was sixty-eight years old.

Mr. Miles was the son of the firm's founder and from 1906 to 1910 had been vice-president of the company. He has been a member of the board of directors since 1922.

Menno A. Vesper

Menno A. Vesper, director of the field sales division of Merck & Co., Inc., died in New York City, April 2. He was sixty-four years old.

Mr. Vesper was born in Ashland County, Ohio. He was a graduate pharmacist from the University of Kansas and was actively engaged in the pharmaceutical and chemical fields during his entire career. He had been associated with Merck since 1925.

Walter J. S. Adams

Walter J. S. Adams, sales manager of the Buffalo division of McKesson & Robbins, died March 4 of a heart attack. He had been with the Buffalo division for twenty-one years.

Gustave P. Metz

Dr. Gustave P. Metz, associated with Winthrop Chemical Co. since 1926 and brother of the late Herman A. Metz, died at his home in Albany April 7 after a long illness. He was sixty-eight years old.

Major E. W. King

Major Everett Wilfred King of the Army Air Forces was killed in action in the Southwest Pacific, March 2.

He was for many years with Lorscheider-Schang Co. and later had his own package creating agency. He was known in toilet goods and other fields for a long list of successful packages.

EVERETT W. KING

Major King was born in Brooklyn fifty years ago and was a veteran of the World War and served with Troop C on the Mexican border and in France. He was commissioned a captain in the Air Forces two years ago and for a time was an instructor in flight tactics at the Army Air Forces School in Orlando, Fla.

Everett Prindle

Everett Prindle, son of Carlyle C. Prindle, Pacific coast representative for Bourjois, died in Italy March 10, at the age of 21. He was an armament officer in the U. S. Army Air Forces. He left the Georgia School of Technology, Atlanta, Ga., to join the Army early in 1943 and was commissioned a second lieutenant in the fall of that year.

William Buss

William Buss, vice-president of McKesson & Robbins, Chicago died recently following a heart attack. He was seventy-seven years old and had been with the company for nearly sixty years.

H. B. Crow

H. B. Crow, vice-president of Bauer & Black, division of Kendall Co., Chicago, died about the middle of March after an illness of several months.

Following the first World War in which he served as a major, he joined Bauer & Black in August 1921. He had been sales manager and vice-president and at the time of his death was vice-president in charge of drug surgical dressings sales.

A War Vocabulary

CEILINGS

WHILE we are considering the placing of ceilings to enclose and prevent a wild expansion, the escaping or running away inflation—let's consider these kinds of ceilings:

1st. A ceiling of bombs over the Hitler and Tojo ideologies, so that they will be blown off the face of the earth, and what are left of these people are taught that comity (meaning civility and good will) must underlie their gains in the future.

2nd. Let's build our own ceiling at home to hold and contain a sanity of purpose, desire and accomplishment, along the lines of a worth while progress that recognizes not only our own desires, but the welfare of mankind.

These two ceilings only will bring a consummation from this war, which will have made it worth while.

U. S. BOTTLERS
Machinery Co.
4011 N. ROCKWELL ST., CHICAGO

MANUFACTURERS OF
PUMPS
CAPPERS
FILTERS
CONVEYORS
WASHERS & DRYERS
WASHERS
CORKERS
FILLERS

Three #2-TH MIKRO-PULVERIZERS blending and dispersing roughly pre-mixed talcum powder mixtures. The finished powder — fine textured and completely blended — is discharged directly into filling machines.

Superior Powder or Rouge Blends in a SINGLE Process!

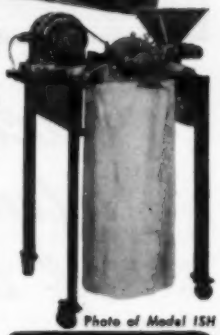


Photo of Model 15H

There's no color pre-milling, long mixing, or bolting needed when you put the dustless, compact MIKRO-PULVERIZER to work in your cosmetic plant!

In a *single* process — in less than *half* the processing time — the MIKRO-PULVERIZER gives you superior blends at a fraction of the cost of ordinary milling, mixing and sifting methods. Color and perfume costs drop 25 to 30% . . . every particle of color and perfume is greatly extended, making fine textured face powder and rouge that require no further treatment. Your products are magic-spun . . . ready for packaging or pressing after *one short run* in the MIKRO-PULVERIZER!

Here's a Challenge!

Why not submit a sample of your cosmetic mixtures to our test grinding laboratory *without obligation?* All test data will be held in strictest confidence.

Send for FREE 32-page catalogue showing the complete MIKRO-PULVERIZER line.

The MIKRO-PULVERIZER
blends and pulverizes in *one operation!*

- Has no fan or auxiliary devices
- Eliminates screening
- Reduces cleaning time up to 90%
- Saves power from 25 to 75%
- Requires a minimum of attention of unskilled help — mesh controlled mechanically
- Needs little floor space — no steel or concrete foundations

PULVERIZING MACHINERY COMPANY
22 Chatham Road • Summit, New Jersey

MIKRO-PULVERIZER
*Reg. U. S. Pat. Off.

S. S. WHITE DENTAL BURS

Packaged for the utmost convenience of the user

Packaging that contributes to the convenience with which a product can be used is a mighty important builder of good will.

The S. S. White Dental Manufacturing Company's dental-bur packages are a fine example. Set in a special plastic holder which they produce, these burs may be placed upright on the dentist's instrument case. A special carton, with a cut-out that reveals the contents, fits snugly over the burs and holder. And to provide protection against contamination, the carton is enclosed in a firmly heat-sealed wrap by our Model CM-2—the ideal machine for wrapping small-size packages. Both sizes illustrated are readily accommodated, since the CM-2 can be easily adjusted for a different size.

The CM-2 is but one of a large family of our machines now wrapping millions of packages daily for the armed forces as well as for civilian needs. From this extremely versatile group, you will have no difficulty in securing the right machine for your wartime and post-war wrapping needs.

Put your problem up to our nearest office

PACKAGE MACHINERY COMPANY
Springfield 7, Massachusetts

NEW YORK CHICAGO CLEVELAND LOS ANGELES TORONTO

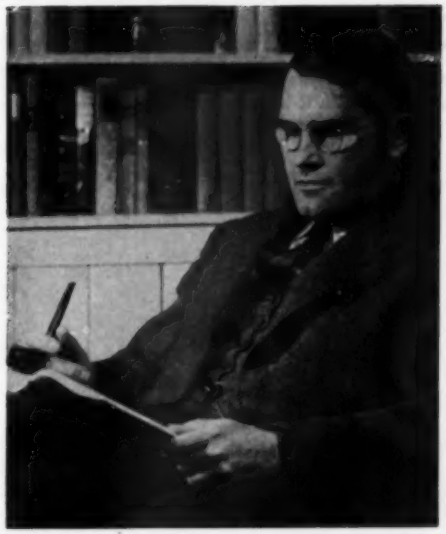
Flexibility

of the CM-2 is illustrated by the fact that it can also wrap a package as large as the standard cough drop package.

PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

PRODUCTION FORUM



By FRANCIS CHILSON
Production Engineer

PENSIONS AND PENSIONERS

Not long ago we made some remarks on the inadvisability of pensions for salaried executives on the ground that pensioners retard progress; they keep young men down; they will not make important decisions lest they make mistakes which may affect their pension status; they love the good old days and obsolete ways and what was good enough for them for forty years is good enough for you. Frankly we think that if salaried officials and executives cannot provide for their own retirement they ought at least to step aside and let young men take their jobs.

But you must provide pensions for the rank and file, the straw bosses and minor executives for exactly the same reason that you set up a depreciation reserve for equipment. You don't hesitate to depreciate equipment as fast as the law allows; you don't mind spending money repairing it. Why should there be any question, therefore, about setting aside a pension reserve for those who contribute to the progress of the business but do not get enough out of it to provide, out of savings, for their own retirement? Why should there be any hesitancy about providing a repair fund, that is, health insurance for sick employees?

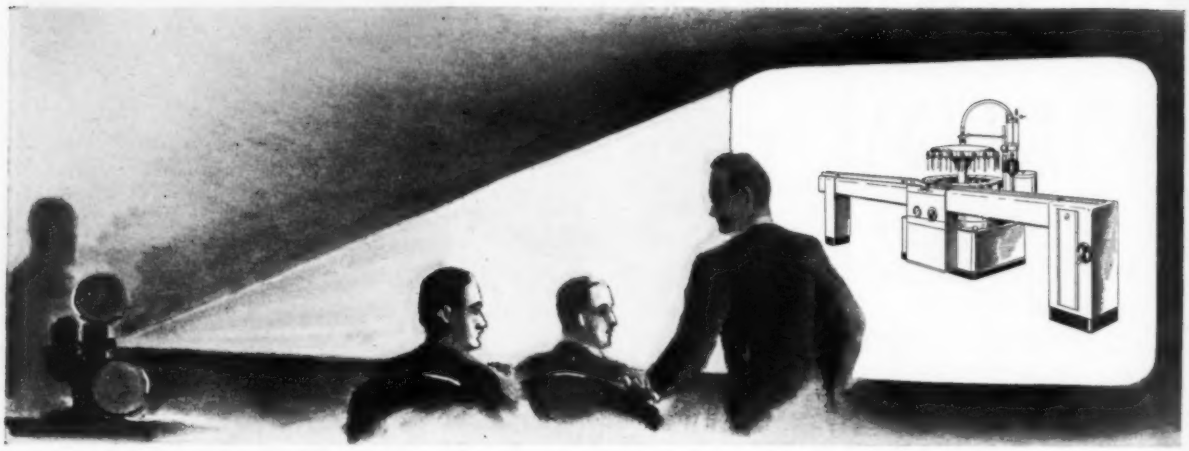
Your carefully protected and maintained machines do not run themselves; men run them. Men are your primary assets and even though they sometimes seem to contribute nothing more than muscle, they nevertheless contribute enough intelligence to keep the work moving and the machines clicking. If the average employer paid as much attention to selecting men as he does to selecting equipment he'd be a hell of a sight better off from an efficiency standpoint. I've seen engineers and executives spend weeks selecting a machine that would cost, let us say, five thousand dollars and minutes selecting a man to run it. If the man carelessly ruins the machine he gets fired; if the management carelessly ruins the man through failure to provide sanitary, dust-free working conditions; good lighting and ventilation; he gets fired anyway. Doesn't make sense. Maintain your men and they will maintain your machines—and you.

BREAST PROTECTORS

My interest in scientific developments led me to describe a month ago certain devices made of Lumarith and devised for the protection of the breasts of female workers. These devices require to be form fitted and to this end have to be heated so that they can be moulded to appropriate contours by hand. Although I have long been an opponent of manual or hand work, I can see in this particular exception certain advantages which might accrue from hand manipulation.

However, my detached interest in this new scientific development gave you no right to be facetious nor to lay bets that you could mould them (the cups) without heat at all or by heat generated through spontaneous combustion. You're not that hot. In any case I resent the implication that my interest was anything but didactic (look that one up) in calling your attention to devices intended for the protection of female breasts. I'm for them—the cups, I mean. I can see that they have an intrinsic after-work utility, or what the package designers call a "re-use" value. If Cardinal Richelieu could drink, as he is said to have done, champagne out of Madame DuBarry's slipper there seems to be no reason why you shouldn't drink champagne out of one of these bubby cups. You could even drink a chaser out of the other. It would be inadvisable, however, to go home wearing one of them for a hat. Your wife

IN THE POST-WAR WORLD
BUSINESS WILL FLOW TO YOUR PLANT

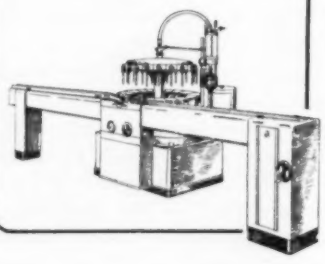


IF YOU CAN PRODUCE QUICKLY—AT LOW COST

Completely automatic, semi-automatic, hand-fed equipment to clean, fill, close, convey jars, bottles, tins, collapsible tubes.

o

Filters Pumps Percolators



Today the industrial world is steeped in orders, mainly for one customer: Uncle Sam. Was time ever so valuable.

Yet who knows just how priceless
it will be when the war ends.

All indications point to a "highly" strenuous competition in speed of operation . . . yes, and with efficient and accurate production.

Those manufacturers who are best equipped will do the best job . . . quickest and most economically. That's why so many who will require new bottling and packaging machinery are consulting with us now. Of this group, a great majority have already decided that the "order of the day" must call for Kiefer equipment. They have listed their requirements with our company for post-war construction and delivery.

"First come, first served." Write us today.

THE KARL KIEFER MACHINE CO.
CINCINNATI, U.S.A.

NEW YORK • BOSTON • CHICAGO • SAN FRANCISCO • SEATTLE • LOS ANGELES • LONDON, ENGLAND

might not approve. I understand that these cups are available in standard sizes from a pint to a gallon. No—it will not be necessary for you to measure; a guess will do.

PURCHASING

Sometime ago your attention was called to the fact that personnel work seems naturally adapted to a woman's nature. I believe that sincerely. Not because the majority of the personnel men I've known are klucks—most of them in fact are really good—but because men can go so far in dealing with women; then they strike a barrier compounded of shyness, embarrassment and fear. It is the same in dealing with men. Men fear ridicule; they conceal from other men the little triviata which upsets them, but women understand and appreciate the importance of trivia. Men understand trivia insofar as they relate to themselves and fail to understand its importance to other men. This preface is by way of letting you know that I know a technically trained girl who will make a whiz-bang for some outfit looking for a percipient personnel manager.

Also while we are on women, I'd like to express wonderment that more women are not purchasing agents. Women are natural buyers; they'll haggle over pennies and chisel the horns off the devil. Besides women are the purchasing agents of America in a broad sense. Merchandising surveys have shown that women buy everything; the old man simply foots the bill. So why not develop more women as responsible purchasing agents? Years back I had to do a good bit of purchasing myself, but I got wise after a time and delegated it to my secretary, who did a better job. Eventually she became a professional and I've since heard it said that she's really good—at purchasing.

GENERAL MANAGEMENT

There is a prevalent illusion that good organization and good management are one and the same thing. It just isn't so. Having knocked about a good bit, having reorganized or modernized more than fifty companies large and small, one impression has been gaining strength with accumulating experience, namely, that a man can be a good organizer and a poor general manager. He can set up a pattern; he can perceive the relation of functions, but to save his life he can't make the pattern work smoothly. Either he makes decisions which throw departments related to the one directly affected completely out of gear or else he kills himself with paper work and routine following up each little detail to make sure that nothing gets knocked out of whack. We are slowly coming around to the view that a general manager must be a professional, trained, not in one, but in several endeavors or companies. Instantly he must be able to see the relation of the parts to the whole and the effect of the whole on company policy and plans. Instinctively he is a good organizer; instantly he sees on all the effect of a decision in one department. Good ones are rare birds.

PRODUCTION CONTROL BOARDS

If they have not sold, Morton Mfg. Co., Lynchburg, Va. have two Produc-Trol Boards, 34 x 43, brand new which they would like to sell at a third off cost. These production control boards are like Gantt charts and were described to you some time ago. If you are interested write Mr. L. B. Whitehouse.

INDICATIONS

There is a line is a Shakespearian song to the effect that the little pitted speck in garnered fruit rotting slowly, slowly moulders all. How true that is of organizations! If you can stand aside and look at your own or other organizations you can detect the little "pitted specks" which eventually cause them to rot inwardly. Also you can, if you are sharp enough, detect the seeds which one day will flower and bear the fruits of success. It is easier, however, to detect the little rotten spots. I call them "indications."

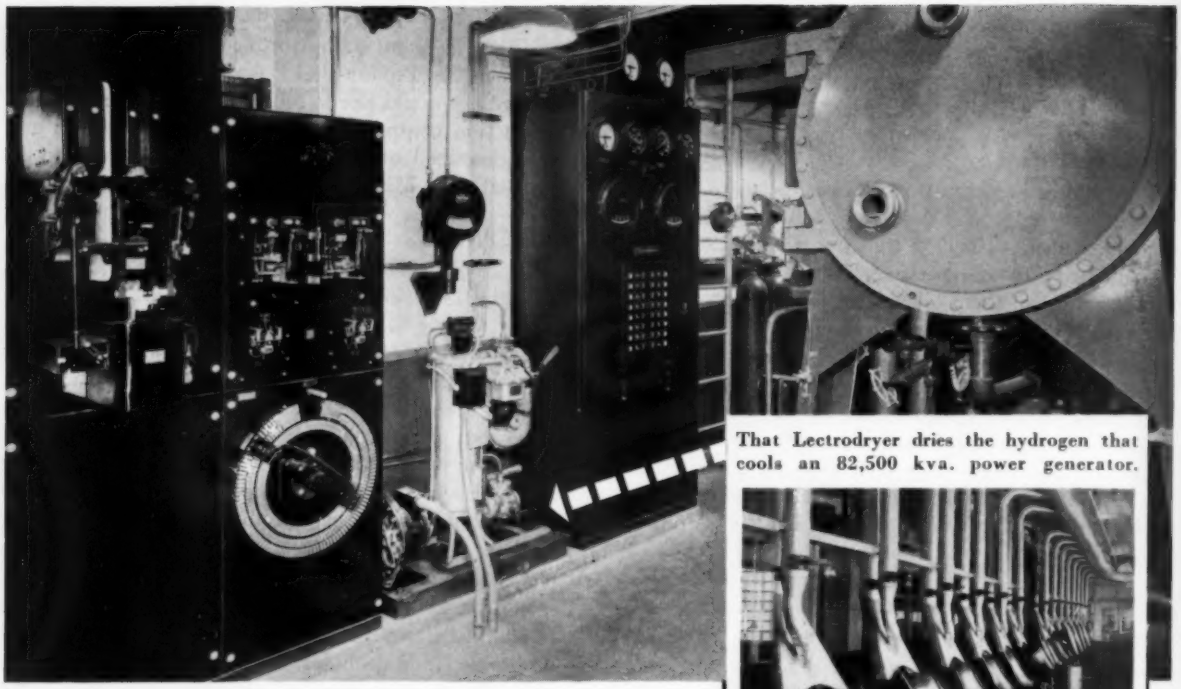
Ten years ago I predicted that a certain very prominent firm would decline steadily because it was full of rotten spots—the seeds of destruction, which eventually would destroy it. Although it is still big and still profitable, it is declining steadily. This firm rose to greatness on the wings of an economic opportunity that will never come again. Now its wings are growing shabby as competition plucks its wings feather by feather. The seeds of death rot slowly on.

What were they?

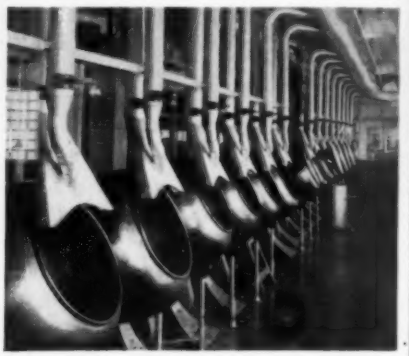
One was cheapness. Responsible salesmen were treated like servants; they were given meager expense accounts, subjected to onerous little travel rules like being made to travel all night to save hotel bills and forced to travel on their own time, whenever that was possible; they were docked whenever they were sick and sales conferences were planned so that the men would have to travel on Sundays or holidays. Entertainment was taboo—or preferably at the salesman's own expense. The cheapness extended also to the plant. Machines were never replaced so long as the old ones would run and then new ones were not bought until the second hand market was thoroughly scoured. If it was thought that the price of a piece of equipment was too high there was no hesitancy about copying it in the company's own shop or in the shop of some little local chiseler. Had a building to be erected and it was done in the cheapest possible way.

Another indication was meanness. A fairly important executive fell ill for quite a spell and the company grudgingly paid his salary but when it was discovered that he had a private health insurance policy, the amount of the small stipend paid by the insurance company was deducted from his pay.

Another indication was "inwardness." They were big and self contained. Too big to employ consultants either for legal, chemical or engineering work. It gives us some sour satisfaction to say their plant looks it. As a consequence they are employing processes and equip-



That Lectrodryer dries the hydrogen that cools an 82,500 kva. power generator.



A Lectrodryer supplies DRY air to these coating pans, thus speeding up production.

JUDGE *Lectrodryer* QUALITY

BY THE COMPANY IT KEEPS

That little Lectrodryer wields a lot of authority in this power plant. It constantly inspects the hydrogen that's used to cool the giant electrical generator. It weeds out the water, and returns the gas to the job absolutely DRY. Thus it conditions the hydrogen for safe, efficient cooling.

This dependence on Lectrodryers is typical of hundreds of installations. They're drying air in humidity control systems; you've doubtless seen them many times in your own industry. They're drying gases and organic liquids extremely dry, thereby enabling manufacturers to work with materials of known DRYness.

You can avoid summertime slumps by maintaining constant humidities the year 'round, with the help of Lectrodryers. And you can standardize many of your processes—speed them up, improve quality—by using Lectrodryers to DRY materials with which you are working.

Lectrodryers can doubtless aid you, just as they are doing for other producers of vital war materials. Tell your DRYing problems to Pittsburgh Lectrodryer Corporation, 309 32nd Street, Pittsburgh 30, Pennsylvania.

In England: Birmingham Electric Furnaces, Ltd., Tyburn Road, Erdington, Birmingham.
In Australia: Birmingham Electric Furnaces, Ltd., 51 Parramatta Road, Glebe, Sidney.

LECTRODRYERS DRY WITH ACTIVATED ALUMINAS

PITTSBURGH

LECTRODRYER

Reg. U.S. Pat. Off.

CORPORATION

ment that were obsolete twenty years ago, and they are cocky enough to brag that not only did they originate the processes, but that they are still superior to all others! They dislike having to hire outsiders They start their executives as office boys or freshmen. Many of them still are after a quarter of a century. Their top flight official regards their smaller competitors with a patronizing air while the competitors continue to cut in on them. But lately there is evidence of a shake up—a radical policy change. Maybe the big bird's wings are just moulting after all?

PICTORIAL TRAINING

The army has done a swell job training recruits in various complex pursuits by pictorial means. These consist of motion picture, stills, cartoons and drawings of various kinds. It is to be hoped that all this educative material will be gathered together and published for the benefit of industry for the study of the principles involved.

The various drug manufacturing associations should collectively underwrite a whole series of training programs, which would consist of motion pictures and all the rest of it for distribution to member companies for use in training new employees. Close-ups of various kinds of manual and machine operations could be made so that the green operator could see as well as hear from her instructor just how to do a particular task. Stills could be published in albums for study by employees. The idea might be carried even farther and motion pictures made of various modern plants throughout the trade for exhibition at conventions and production conferences. Carefully detailed motion pictures would be more informative than actual plant visits because the pictures could be re-run when necessary for more careful study and they could be run at slow motion so that close ups of machines would reveal exactly how they operate.

The making of motion pictures and elaborate stills and educative drawings cannot be undertaken by individual corporations because of the expense involved; it's a collective enterprise from which all might benefit and to which all should contribute.

NEW FLOORING

H. H. Robertson Co., Farmers Bank Bldg., Pittsburgh, Pa., make a non-sparking flooring material of a plastic nature containing copper which is anti-bacterial and mood inhibitive. When applied over wood or concrete at least ½ inch thick it will not—so the manufacturer says—chip, crack, dust or soften. It has been used in biological laboratories, operating rooms and the like and its non-sparking character should make it desirable for areas exposed to inflammable fumes.

Also the Armstrong Cork Co. has brought out a new industrial asphalt tile which is supposed to be a lot tougher than conventional types. Illustrations show a guy trucking over it with an apparently heavily loaded skid and lift truck. If it doesn't soften or mark too much under heat or pressure it's the answer to a maiden-aunt's prayer.

I've never found a perfect floor renovating material yet. It seems as though with all the new fibres, plastics, cements, glues, chemicals and pulverized metals that have become available that somebody should produce the ideal flooring material—in color of course.

SALVAGE

The January 10th issue contains an article in the business section "Problems of Plenty" dealing with post-war problems. In the section dealing with reconversion and the disposal of government owned plants, Time, listing the difficulties in certain directions, points out that while a tank factory can make tractors and bull-dozers, and air craft plants can make household equipment (and prefabricated houses and boats), it is not possible to convert a heavy duty press into a unit for making Wheaties. Time therefore reaches the dismal and pessimistic conclusion that a large part of the war equipment and plants must be plowed under.

I hope to God that does not occur. I'd like to see the government take one of the larger air-craft plants like Willow Run and convert it into a storage warehouse for the storage of the big, heavy duty presses, the gigantic gun lathes and similar equipment which has only a war time value. Heavy duty equipment of this type does not depreciate rapidly or become obsolete. If properly cared for heavy duty equipment will last for fifty years —that is until the next war, when we'll need it again. Like fools we scrapped our gun lathes our giant cranes, our heavy duty steam hammers and our giant presses after the last war and for the lack of them we came within an ace of getting caught with our pants down. This war came upon us suddenly; the next one will come faster.

Storage of tanks, field guns, ordnance of all kinds presents no problem. After the last war we left it in the fields until such equipment rusted into uselessness and was sold for scrap to our enemies. This time we have the giant buildings in various regions; let's use them. It is not necessary even to grease such equipment to keep it from rusting and deteriorating. If the humidity in storage buildings is kept below 30% ferrous metals will not rust even though unpainted surfaces are unprotected with oil or grease. Therefore, dehumidifying equipment such as the Lectrodryer, can be installed in each warehouse building and its windows sealed up. The cost of maintaining these storage buildings would be insignificant.

Clip this and send it to your congressman or senator together with any additional suggestions you may think of. It would be a crime to destroy our war industry plant. Remember, that we were able to build it in time to defend ourselves only because God, the Russians, the British, luck and Hitler's stupidity stood between us and total disaster.

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Northern Blower Co., 6502 Barberton Ave., Cleveland 2, Ohio, have introduced a packaged dust collecting unit, complete as to fan and filters and completely portable. Useful in isolated spots where dusty but intermittent operations are performed. Handy in small air conditioned tablet rooms.

Another similar portable unit with adjustable collecting ducts and hoods is offered by Aget-Detroit Co., 601 First National, Ann Arbor, Mich. Why are so many banks called "First National?"

GREASE PUMP

The grease pump I mentioned a couple of months ago is made by Alemite, 1817 Diversey Parkway, Chicago.

HUMIDIFIER

For paper storage, label rooms and glue storage rooms you'll find the Bahnson Unit Type L a handy humidifying gadget. Made by the Bahnson Co., Winston-Salem, N. C.

VERTICAL HAMMER MILL

A handy vertical hammer mill has been developed by Enterprise Engine & Foundry Co., Florida & 18th, San Francisco, Cal. The unit is top driven, the motor being mounted directly above a perforated housing or screen. The screen contains the shaft to which the spikes or hammers are rigidly affixed. Material is fed into the housing or bashing chamber at the rear of the unit from a feeding device. This machine was designed for pulping fruits but it has been used for grinding nuts spices, etc. Nice, compact job.

MEN AVAILABLE

I know of two good men who'd like to switch jobs. One is on the look-out for a general managership with a small company. He's a swell guy and knows every part of the drug business. He'd like a job managing one of the smaller companies.

The other chap also is a swell guy and a first class pharmaceutical plant manager. He'd like to locate in the East.

Both men have been known to me personally for years. Not often will you have a chance to pick up two such men.

Industry's Books

The Chemistry of Organic Medicinal Products, by Glenn L. Jenkins, Dean and Professor of Pharmaceutical Chemistry School of Pharmacy, Purdue University, and Walter H. Hartung, Professor of Pharmaceutical Chemistry School of Pharmacy, The University of Maryland, Second Ed., 675 pp., John Wiley and Sons, Inc., New York, $6.50.

The objective in writing this book has been to organize the large number of organic medicinal compounds according to the accepted scheme of chemical classification. The chemistry of methods of preparation, the properties, and descriptions of the more important compounds of each class are included. The uses and modes of administration are given so that some idea of the relative importance of the compounds may be gained. This edition has been completely revised. Some chapters have been completely rewritten, and a new chapter entitled "Some Physicochemical Properties of Medicinal Products" has been added. The subject matter has been brought up to date so far as conditions permit.

Nervousness Indigestion And Pain, by Walter C. Alvarez, M.D., Professor of Medicine, University of Minnesota (Mayo Foundation), 488 pp., Paul B. Hoeber, Inc., New York, $5.

Dr. Alvarez takes the reader with him into his consulting room and shows him how he takes a history so that it often gives him the diagnosis, how he sizes up the patient, gains his confidence, and plans the treatment. Full of just those "tricks" of diagnosis and treatment which are acquired only by long experience, every doctor will value this helpful new book. Enlivened with pointed medical anecdotes, it is as enjoyable as it is instructive. Not only will doctors value this record of Dr. Alvarez'a own clinical experience, but they will consider it a book to recommend to intelligent patients.

Plants And Vitamins, by W. H. Schopfer, Director of the Botanical Institute, University of Bern, translation by Norbert L. Noecker, 293 pp., Illus., Chronica Botanica Co., Waltham, Mass., $4.75.

This is a critical review of the vitamin problem written from the viewpoint of general physiology. It is a very instructive discussion of vitamins transecting the various fields of biology: microbiology, plant and animal physiology, biochemistry, morphology, cytology, genetics, medicine, plant pathology, horticulture, and agriculture. The practical applications of vitamin research to these fields are given special consideration. The theoretical aspects of the various vitamin problems are also treated and should be of interest to students and teachers of general biology. Professor Schopfer's research experience and his broad scholarly interests form a happy combination and the proper background for a treatise of this kind.

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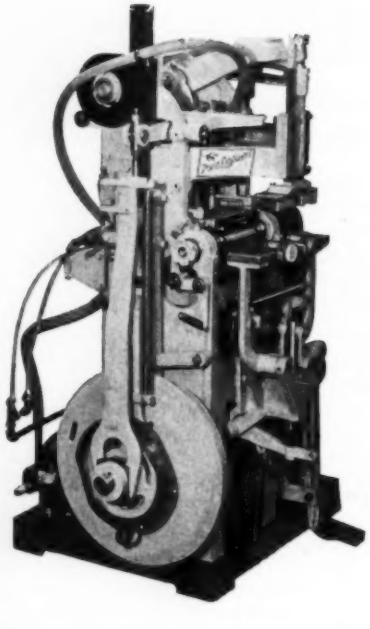

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Industry's Books

The Principles And Practice Of Industrial Medicine, edited by Fred J. Wampler, M.D., Professor, Preventive And Industrial Medicine, Medical College of Virginia, 579 pp., The Williams & Wilkins Co., Baltimore, $6.

This timely work is the result of the coordinated effort of a group of 32 experts from every field of industrial medicine. They present today's concepts of the relationship of environment to physical well-being of the worker and show how to apply such knowledge in practice. The book, therefore, serves the dual purpose of advising practicising physicians (especially those who without much preparation are being asked to take on the medical care of workers) and of instructing medical students so that they will know how to step in and do a real job of health protection in industry.

The Modern Physician And Home Medical Guide, by G. N. Gillum, B.A., M.D., In Collaboration with L. W. Gillum, B.A., M.A., 716 pp., Illus., Wilcox & Follett Co., Chicago, $2.49.

Today one physician out of every three is in military service and it is, therefore, more important than ever before to have a source of authoritative health information readily available in the home. The purpose of the book is, of course, not to replace in any way the services of the physician, but to give information on the body and its functions, facts about diseases, first aid, diet, hygiene, and preventive measures that should be part of the common knowledge of every intelligent person. A few of the many topics covered in this book are what to do in emergencies, accidents, injuries; awareness of symptoms; measures to make the patient comfortable; means of prevention that are largely in the hands of the layman. The book is up to datein that it contains the latest advances such as lifesaving use of blood plasma, sulfa drugs, the Kenny treatment of infantile paralysis, explained in non-technical language, with the aid of photographs and diagrams. An index and chapter subheadings make it easy to turn to the desired subject instantly when emergencies arise.

Emulsion Technology, 290 pp., Chemical Publishing Co., Brooklyn, $5.

This discusses the new developments in emulsions and the role they are playing in industry. It covers the theory and use of emulsions and emulsifiers in agriculture, food, drugs, cosmetics, beverages, polishes, waxes, coatings, paints, etc. Data concerning the equipment and techniques used in the manufacture of emulsions, are included. This work also includes a list of commercial emulsifying agents and formulae of commercial emulsions.

Plant Viruses and Virus Diseases, by F. C. Bawden, Head, Plant Pathology Department, Rothamsted Experimental Station, 2nd Ed., 294 pp., Illus., Chronica Botanica Co., Waltham, Mass., $4.75.

In recent years plant viruses and virus diseases have been studied by workers from widely different fields, who have introduced many new methods into the subject. New lines of research have been opened and striking advances made; these are summarized and correlated. Techniques unfamiliar to botanists are described and the significance of the results they have given is discussed. All general aspects of the subject are treated, but special attention is given to the chemical, physical and serological properties of purified virus preparations. Modern concepts on the sizes, structure, origin and multiplication of viruses are critically reviewed. No chapter remains the same as in the first edition and more than half have been completely rewritten; new illustrations have been added.

Toxicology And Hygiene Of Industrial Solvents, Edited by K. B. Lehmann and F. Flury, 378 pp., The Williams & Wilkins Co., Baltimore, $5.

The present book was written at the request of the medical committee of the German Society for the Protection of Labor in order to summarize the state of our medical knowledge regarding the ever-expanding field of industrial solvents. Its purpose is to describe the scientific foundations which are necessary in order to be able to recognize and judge correctly the numerous dangers to human health which are connected with the use of these materials, and to point out ways and means of meeting these dangers expediently and effectively. It is based on experimental investigations carried out on humans and animals, as well as on knowledge recently obtained from practical experience with injuries to human health. The contents of the book, which forms a companion piece to "Chemical Technology of Solvents (Chemischen Technologie der Losungsmittel)" by Jordan, is predominantly of a medical nature. It was written, however, not merely for the use of the physician, but also to serve as an aid to anyone who has any contact whatsoever with the field treated therein.

Biochemistry For Medical Students, by William Veale Thorpe, M.A., Ph.D., Reader in Chemical Physiology, University of Birmingham, Third Ed., 476 pp., Illus., The Williams & Wilkins Co., Baltimore, $4.50.

The aim of this book is to present an account of the biochemical processes known to occur in the healthy human body. In view of their importance in medical diagnosis, prominence has been given to blood, urine and faeces. Special attention has been paid to the principles of nutrition and the composition of foodstuffs. A considerable amount of new material has been added to this Third Edition by rearrangement of the text. A short chapter on the Chemistry of Respiration has also been added.

First-Aid Training, A Study and Practice Book, by Morris Fishbein, M.D., Editor, Hygeia, and Leslie W. Irwin, Ph.D., Director of Health and Physical Education The Laboratory Schools, University of Chicago, 216 pp., Lyons and Carnahan, Chicago, 80c.

This book includes not only specific instruction but also activities, practical, problems summaries, unit and review tests, and other material designed to reinforce what has been learned. The techniques described are those well recognized by the medical profession, except that the very newest material developed from the experience of World War II has been included. This refers particularly to the first aid given for wounds, the treatment of shock, and artificial respiration.

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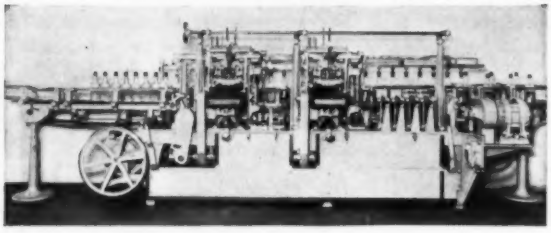

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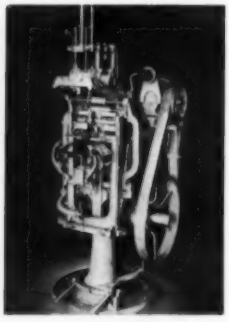

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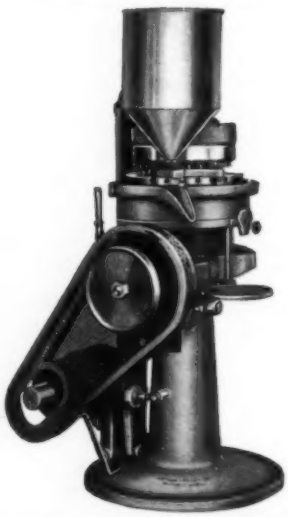

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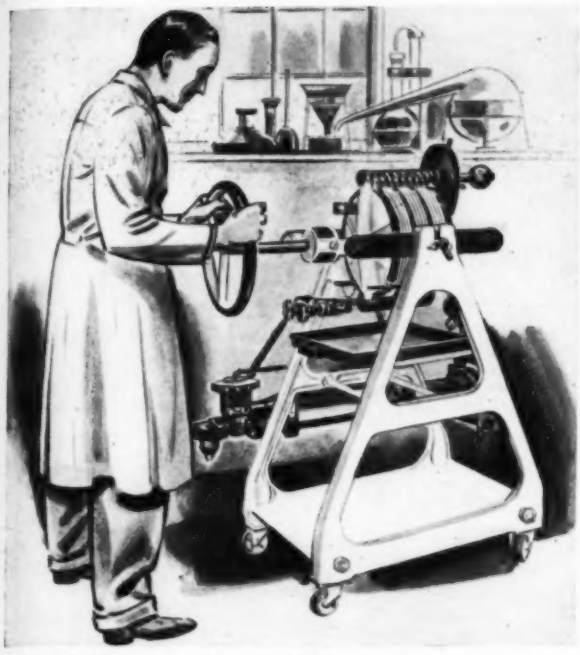

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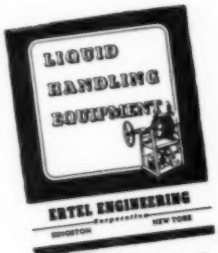

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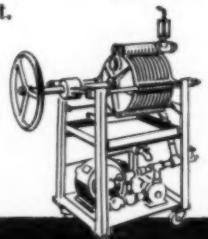

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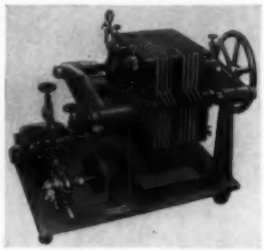

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BOIS DE ROSE

Ten years ago the term Bois de Rose was a common term used in the cosmetic industry but the source of this material has changed from French Guiana to Brazil which country has now become the most important producer of this product. Naturally with the extreme shortages caused by the war and lack of importations of lavender and bergamot, Bois de Rose Brazil has gained an outstanding place on the perfumer's shelf. Without this product and its derivatives, Linalool and Linalyl acetate, it would be practically impossible to develop a synthetic bergamot or lavender. Since we have not had any shipments from Italy of the oil of bergamot since the beginning of the war, one can well understand that any true oil now available would be of inferior quality since being of a citric nature, decomposition usually takes place during so long a period. Therefore bergamot, the bread and butter of every perfumer, must be replaced and naturally the perfumers look towards Bois de Rose and its derivatives to replace this valuable perfume ingredient.

At the present time the market is very short of Bois de Rose and its derivatives, but the Brazilian Government is now shipping their stock of 300 tons into this market which will be absorbed quickly by the perfumer. It is rumored that production of this material will not continue since the natives are employed in gathering rubber and the Governments do not wish to interfere with rubber collection. It is therefore predicted that no further shipments will be forthcoming until peacetime.

The soap maker not only uses Bois de Rose in its natural state but acidulates it to form an acetylated Bois de Rose, or may prefer its use in a terpeneless form, both products giving an excellent odor to soap when compounded with certain aromatic chemicals and essential oils. Linalool, which is also derived from Bois de Rose by distillation, is very valuable in the formulation of synthetic lavenders, also finding a use in many fancy bouquets and in Lily of the Valley, Jasmine, Neroli and Lilac. Its most important ester, Linalyl acetate, is found naturally in many essential oils, notably Jasmine, Gardenia, Ylang-Ylang and many other special perfume types. Bois de Rose Brazil is not the only source of these materials. They may also be obtained from Mexican Linaloe oil and Japanese oil of Ho, now unobtainable. The other esters of Linalool are used by the industry only in small quantities. Although they do find some place in certain types of synthetic flavors, they are relatively unimportant.

STORING AND PRESERVING PEPPERMINT OIL

Because improper storage of peppermint oil, the chief factor in the deterioration of this product, causes a darkening of the oil as well as the production of an off-odor and resinous appearance, L. H. Baldinger, N. K. Ellis and K. J. Fawcett (*J. Am. Pharm. Assoc.* 33:41, 1944) undertook an investigation of storage conditions, experiments on the use of antioxidants for the preservation of the oil and a study of the combined effects of antioxidants and proper storage conditions.

Using the per cent of menthol in oil of peppermint as a criterion upon which to base the efficiency of antioxidant action and to compare storage conditions, it has been observed that cool-cellar storage is better than storage in an attic or in locations where extremes of temperature are likely. In comparing the various types of containers, it is believed that the sealed tin is the most advantageous of the containers which were tested.

Catechol as an antioxidant in 0.1% concentration appears to be more effective than hydroquinone in maintaining the original menthol percentage. Perhaps the chief disadvantage in the use of either of these antioxidants is the slight coloration produced, especially in the older oils. This coloration is more noticeable in the case of hydroquinone-protected samples, much less pronounced in the catechol-protected samples and less noticeable for both antioxidants in the samples stored in corked bottles and sealed tins. The slight coloration is not accompanied by a resinous odor which is very noticeable in unprotected oils. The authors are reluctant to recommend the use of antioxidants except to those who are cognizant of the limitations of such agents for the preservation of easily oxidized materials such as peppermint oil.

For the growers and producers, it is recommended, wherever feasible, that sealed containers, completely filled, be used for storing oil and that cool storage conditions be maintained at all times.

LEMON AND ORANGE OIL PRESERVATION

According to W. Lakritz (*Mfg. Confectioner* 23, No. 9, 18, 1943) the oxidation of volatile oils is believed attributable to attack at the double bond with formation of an oxide, to some hydrolytic and ketonic changes or to some involved photochemical or physiological action. An acid medium, he notes, is deleterious to most known bacteria. As an antioxidizing agent for expressed oil of lemon and orange, benzyl para-hydroxybenzoate in concentrations of from 0.02 to 0.1 per cent was not entirely satisfactory. Hydroquinone is the same concentrations gave excellent results, even in the lowest concentrations. Wheat-germ oil used alone was not as good as hydroquinone. A mixture of wheat-germ oil and of hydroquinone gave the best results. A sample containing this mixture has retained its flavor without change of color after seven months of storage. At the concentrations used, hydroquinone is nontoxic.

ODOR ALLERGY

Back in 1942, E. Erbach (*J. Allergy* 13:387, 1942) reported that "osmyls" or odoriferous particles of scents can act as allergens on inhalation. He found that hypersensitiveness to the scent of some plants and blossoms occurs without associated hypersensitiveness to their pollens.

In his recently published book on allergy, Erbach observed that individuals are frequently seen whose hay fever symptoms appear when they are in the vicinity of roses, locust trees, linden trees, mock orange, carnations, privet, lilies, common elder, lilac, lily of the valley, violet and other odoriferous

blossoms. Clinical evidence of the fact that odors or ethereal oils and not pollens are operative in such cases has been obtained by tests developed by the author.

Since desensitization by the usual means cannot be applied in such cases, Erbach developed an oral method of treatment based on the use of substances prepared by the process of enfleurage, long employed in the extraction of essential oils. The lard takes on the smell and taste of the responsible blossoms and the so-called "blossom butter" is used to desensitize the patient to the particular hypersensitiveness.

BORONIA CONCRETE OIL

In a note in *Soap, Perfumery and Cosmetics* for February 1944 it is pointed out that concretes of *Boronia megastigma*, investigated by Penfold and Phillips showed the following constants:

M.P.	35 to 41°
Specific Gravity at 15° C.	0.8989 to 0.9189
Refractive Index at 38° C.	1.4752 to 1.4852
Acid Value	22.8 to 30.5
Ester Value	95.9 to 109.3
Ester Value after Acetylation	136.5 to 149.0

The concrete has a butter-like consistency; because of the content of chlorophyll it possesses a green color.

The odor of boronia flower oil is rather distinctive and novel. It suggests violet and cassie, in conjunction with fruity notes such as peach and apricot. The odor is lasting, and therefore the absolute of boronia forms an excellent base for perfumes of entirely new and alluring tonalities.

EUCALYPTUS OIL CONSTITUENTS

In a review of the Australian eucalyptus oil industry from 1939 to 1943, A. R. Penfold and F. R. Morrison (*Austraasian Pharm. Notes and News*, Jan. 17, 1944) report that all such oils are refined by distillation before sale with the exception of *Eucalyptus dives*. The first runnings, consisting of volatile aldehydes and some terpenes, find quite extensive use in industry; some of the uses of the principal constituents being as follows:

1. Volatile aldehydes (principally isovaleric) are used in various proprietary preparations, including disinfectants.

2. Pinene and other terpenes are used in the manufacture of certain blended turpentines.

3. Cineol, the principal constituent of medicinal eucalyptus oils, is used in pharmacy and confectionery.

4. Phellandrene is obtained as a by-product in the separation of piperitone from *Eucalyptus dives* and allied species, and is in heavy demand as a general solvent.

5. Terpineol, the well-known perfumery constituent of hyacinth odor, is separated from the high boiling fractions of *Eucalyptus Australiani, E. dives Var. "C", etc.*

6. Eudesmol, the principal sesquiterpene alcohol of eucalyptus oils, is a very satisfactory fixative for perfumes required for industrial purposes.

7. Eudesmyl acetate, prepared by acetylating eudesmol, is used as a wartime substitute for oil of bergamot and its constituents. It blends fairly well with lavender oil.

8. Piperitone (commercial) assaying 90 to 95 per cent ketone, is the raw material for the manufacture of synthetic thymol and menthol.

TEST PLANTINGS IN U. S.

Although the need for considerable hand labor has forced the discontinuance of experimental projects, *The Chemurgic Digest* for January 15, 1944 reports that as a result of test planting activities sage, coriander, caraway, anise, savory and sunflower were produced in southern Idaho and eastern Oregon in commercial quantities, the majority of the growers reporting satisfactory financial returns.

Experimental activities with essential oils were limited to the production of a small amount of clarey sage oil and oil of wormwood in the pilot plant still at Boise. Materials for producing other essential oils were not grown this season.

SUNBURN PREVENTIVE PATENTS

A novel approach to the prevention of sunburn is given in U. S. Patent 2,334,-348 granted to J. Miglarese (assignor to The National Marking Machine Co.). In this procedure, a so-called vitalizing ingredient is dispersed in a non-greasy, readily removable vehicle or in a powder which is applied to the skin for about five minutes. During this time a sufficient amount of the vitalizing ingredient for sunburn prevention separates from the vehicle and adheres to the skin and hair. Then the vehicle is rubbed or washed off, with the result that only a microscopic, substantially colorless layer of the vitalizing agent remains. The vitalizing material may be selected from the group consisting of: 9-ethyl 3 dimethylamino carbazole; 4-methyl 7-diethylamino coumarine; 3 methyl 5-dimethylamino azimidobenzene, etc.

Five grams of the vitalizing material may be incorporated in 100 grams of talcum powder or zinc stearate. Three grams are used with 100 grams of vanishing cream and a similar quantity may be added to 100 cc. of a mixture of 70 parts ethanol, 20 parts water and 5 parts glycerine, by volume.

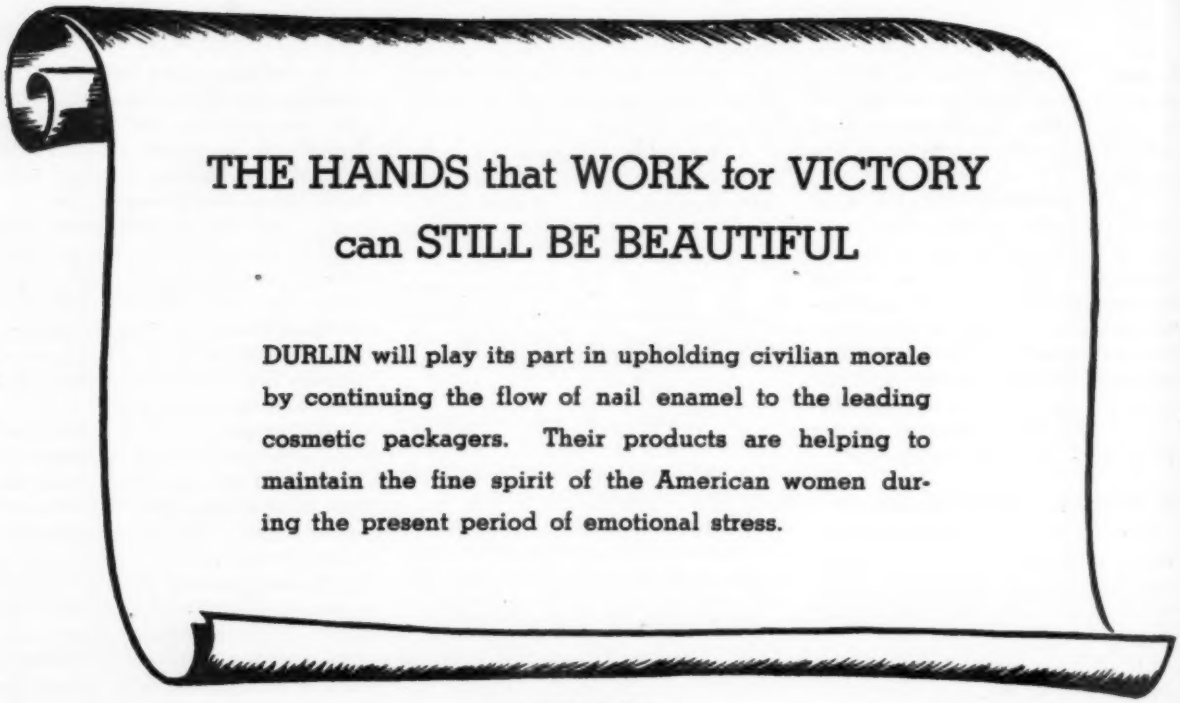
Another preparation (U. S. Patent 2,327,899, granted to S. Isermann and E. Ohlsson) is described as a composition for protection against light of short wave length. This light-intercepting cosmetic composition is made from a polyhydroxy alcohol, such as ethylene glycol or triethylene glycol, mono-substituted with para-amino benzoic acid. It is used in a dilute alcoholic solution and is of neutral action toward the nerve endings near the surface of the skin.

PROPYLENE GLYCOL IN LOTIONS

A. E. Katz, president of Florasynth Laboratories, Inc., New York, tells us that some experiments have been conducted on the use of propylene glycol in the manufacture of lotions. Gratifying results have been achieved by mixing ethyl alcohol and propylene glycol in various proportions. However, it is recommended that reprocessed propylene glycol be used, because redistillation results in very marked improvement in the quality of the product. Even when using as much as 50 per cent of propylene glycol with ethyl alcohol, the solvent quality in making after-shave lotions and toilet waters is retained in Eau de Cologne. This quality can be increased by using terpeneless essential oils. In the case of bay rum, terpeneless bay oil should be used in place of regular oil.

SENSITIVITY TO SULFATHIAZOLE OINTMENT

Although the use of sulfathiazole ointment topically has been considered to be a relatively innocuous type of treatment, unfavorable reactions have been reported. Because of this, R. A. Darke (*J.A.M.A.* 124:403, 1944) of the U. S. Public Health Service has called attention to the degree of sensitivity to sulfathiazole ointment existing among the general population.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Suppositories

(*Continued from page 404*)

Standard methods for making suppositories in small batches are described in the Pharmacopoeia, while details on large scale manufacture are available in standard texts such as those of Caspari and Kelly[3] and Husa.[5] Relative to the manufacture of suppositories is a point that deserves mention. As is well known, it is common practice when suppository molds stick to dust them with lycopodium powder or talc. A warning against such procedures has been made by McCormick and Ramsey,[24] who stress that the use of rectal and vaginal suppositories covered with powder are not without danger, as nonhealing granulomatous lesions may follow their employment.

If a mold lubricant is required when suppositories do not separate readily, the following solution, of British origin,[25] will often prove useful:

Castor oil	1 part
Hard soap	2 parts
Alcohol	18 parts
Water	2 parts

Simple alcoholic solutions of soap are also employed for such purposes in the manufacture of cocoa butter suppositories. However, the use of perfectly clean and dry molds that have been well chilled will usually obviate the need for dusting powders or other substances.

Suppositories have more varied therapeutic uses then is generally supposed. Aside from the familiar evacuant glycerine suppositories and the hemorrhoidal suppositories, these preparations are applied rectally to obtain local antiseptic, hemostatic or other effects. Systemic effects of sulfonamides, diuretics, sedatives and other agents may also be obtained through the use of rectal suppositories. Vaginal suppositories find extensive use in the treatment of both infectious and noninfectious forms of vaginitis, while urethral suppositories or bougies are employed where a sustained local action is desired in the therapy of urethritis.

Evacuant suppositories are the only type not intended for retention. Of these only the glycerine suppositories and the soap suppositories warrant comment. In the old days, soap suppositories have been quite widely used to produce prompt bowel evacuation. Working efficiently through a combined mechanical and irritative action, they obviate the need for laxatives and are especially useful for children. Formerly it was quite usual to cut rectal suppositories of this type from a cake of castile or other mild soap.[5] Today, glycerine suppositories are generally used for this purpose and the official suppository is nothing more than glycerine hardened with soap (sodium stearate) so as to permit solidification and shaping for convenient introduction into the rectum.

Cocoa butter is usually employed in making other types of rectal suppositories, but glycerinated gelatin is used where the fatty excipient is too brittle.[3] Undoubtedly the most widely used of the retention type of suppository are those intended to relieve or treat internal hemorrhoids or to allay pain and provide other desired local effects after rectal operative procedures. Suppositories for such purposes are generally made to contain an astringent, a soothing or protective agent and an antiseptic, plus other useful medication. Thus one commercial preparation contains extract of belladonna, ephedrine sulfate, zinc oxide, boric acid, bismuth oxyiodide, bismuth subcarbonate and balsam Peru distributed in a cocoa butter base. This is quite similar to the following standard formula for making hemorrhoidal suppositories weighing 3 grams each:[25]

Bismuth oxyiodide	1.0 part
Basic bismuth gallate	1.0 part
Zinc oxide	1.0 part
Resorcin	0.1 part
Balsam of Peru	0.5 part
Cocoa butter	26.4 parts

Another preparation for treating internal hemorrhoids, one suggested[26] for use following reduction of prolapsed hemorrhoids, consists of:

Ichtyol	4.00 Gm.
Tannic acid	4.00 Gm.
Extract of stramonium	0.25 Gm.
Cocoa butter	24.00 Gm.

This will suffice to make 12 suppositories.

Suppositories are coming into wider use to administer drugs that will provide a systemic rather than a local effect when inserted into the rectum. For example, Park[4] has found that incorporating sulfonamides in rectal suppositories are especially valuable in cases where these drugs cannot or should not be administered orally. "The base employed in making the suppository," he writes, "is cocoa butter, which melts quickly in the rectum, leaving the drug available for reasonably rapid absorption. Any desired dosage may be utilized. However, 7.7 gr. and 15.4 gr. suppositories of the preferred sulfa drug have been found satisfactory in most instances. The rectal dose is twice that given by mouth."

Trial over a two-year period proved the value of such suppositories, especially for treating infants and young children, and showed that gastric irritability due to oral administration of sulfa drugs could be entirely avoided. Blood level estimations demonstrated that the suppository method of treatment is as efficacious as by using the drug by mouth.

Rectal suppositories containing sedative drugs are useful where other means of securing relaxation are not feasible. Opium and its derivatives, barbiturates, chlorobutanol and chloral hydrate are all used for such purposes; cocoa butter being the vehicle employed.[27, 28] Chloral hydrate appears to be a frequent problem when preparing such suppositories, but this has been overcome by several workers.[29] Thus one group[30] found that best results were obtained in making chloral hy-

drate suppositories by adding 30 to 40 per cent of stearic acid to the cocoa butter. Good results were also obtained with the following formula:

Chloral hydrate	1 Gm.
Lactose	1 Gm.
Cocoa butter	2 Gm.

Depending upon the season, the lactose may be reduced to 0.25 per cent and the cocoa butter quantity raised proportionately.

Diuretics such as mercurin and aminophyllin may be administered in suppositories for the treatment of edema. Indeed, mercurin was developed as a diuretic to be administered rectally and it is claimed that its potency is comparable to that of parenterally administered mercurial diuretics.[28] Used in a cocoa butter base, Flexner[31] found this mercurial suppository quite efficient in the relief of edema in a series of cases.

Epinephrine stabilized with sodium sulfite can also be incorporated in a cocoa butter base. Similarly, digitalis leaf can be dispensed in a base consisting of cocoa butter and beeswax.[28] Rather interesting is a British patent[32] for incorporating insulin in a carrier composed chiefly of cocoa butter and a small proportion of lactic, citric or palmitic acid that saves to protect the insulin against distraction by intestinal enzymes. Adding surface reducing agents, such as saponin, is claimed to accelerate resorption of the insulin.

Vaginal suppositories form an efficient and convenient means for treating various types of vaginitis. Estrogens, including the synthetic diethylstilbestrol, usually dispensed in a glycerogelatin base,[28, 33] have found wide use in the treatment of senile vaginitis of women in the menopause and in the therapy of vulvovaginitis of children.[34, 35, 36, 37, 38] Considered highly specific in their effects on the vaginal mucosa, the administration of estrogens in suppositories eliminates painful injections and permits continued self-treatment at home.

Nonvenereal vaginitis, such as that due to trichomonas infestation, frequently responds to treatment with vaginal suppositories medicated with various antiseptics and fungicides. Sulfonamides have also begun to be used in a similar way. Goldberger,[39] for example, obtained excellent results in a small series of cases by the use of a "potentiated" sulfonamide vaginal suppository containing:

Sulfanilamide	1.0 Gm.
Sulfathiazole	1.0 Gm.
Zinc peroxide (special)	0.5 Gm.
Sodium tetradecyl sulfate	0.2 cc.
Cocoa butter, to make	4.0 Gm.

More recently and with a much larger series of patients with vaginitis and cervicitis, Herz[40] obtained highly satisfactory results with a sulfanilamide sup-

(*Continued on page 480*)

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USES FOR LANOLIN

In a really extensive and inclusive review on lanolin, E. S. Lower (*Manuf. Chem. & Manuf. Perf.* 15:13 & 68, 1944) presents the preparation, properties and many varied uses of this valuable raw material. Lanolin and its emulsions are of great importance in the cosmetic industry. It is sometimes a constituent of the so-called "absorption bases." The uses of lanolin in cosmetics can be divided into two classes. Roughly there are 140 different types of cosmetics and related products on the market at normal times, and it can be seen from a list of these that at least 74 contain, or are based upon, lanolin. The greater proportion of lanolin is used in the making of creams, etc., in emulsion form of the water-in-oil type, such as are represented by cold, sports, hand, skin and cleansing creams.

One of the most important features of lanolin is its extraordinary emulsifying power, enhanced by the fact that the water-in-oil emulsions it produces are extremely stable, possessing good stability towards mild acids and alkalies, enabling medicaments to be incorporated irrespective of *p*H value; also in some cases distilled water is not essential, in view of its freedom from any tendency to rancidity and lack of support for mould or yeast growths.

When lanolin does not form the base of the cosmetic product, there are other reasons for its inclusion; chief among them being its emollient action. The emollient properties of lanolin are especially useful in products designed for winter use, such as sports creams (the majority of which contain a considerable amount of lanolin) and chapped hand cosmetics. The drying effect of some vanishing creams is overcome by the inclusion in their formula of up to 2% lanolin.

A great deal of work has been done on the prevention and correction of occupational dermatitis, and it has been found that lanolin is the most suitable product which can be used to help prevent this disease, especially when used in combination with olive oil in equal parts for mineral oil dermatitis. Other mixtures designed to prevent dermatitis include: (*a*) 13% lanolin, 8.5% glyceryl monostearate, 8.5% liquid paraffin, 70% water; (*b*) hydrous lanolin 5 parts, white wax 10 parts, glyceryl monostearate 12.5 parts, stearic acid 2 parts, and petrolatum 75.5 parts. This latter formula is especially good where the skin is in prolonged contact with soapy water. Another preparation consists of glyceryl monostearate 12 parts, white wax 12 parts, lanolin 6 parts, cholesterol 1 part, sodium silicate 5 parts, ammonium hydroxide (10% solution) 63.5 parts and water 63.5 parts. Where the skin is in prolonged contact with water the following preparation has been recommended: white wax 10, hydrous lanolin 5, sulfonated olive oil 10 and petrolatum 75. The following is a firm, sticky cream which is emollient and a good protective: lanolin 15, oxycholesterol 5, petrolatum jelly 10, cod-liver oil 10, cetyl alcohol 5, water 25 and talc 10.

Other examples are furnished by the following formulae:

No. 1	*parts*
Lanolin	6
Cetyl alcohol	6
Cocoa butter	5
Beeswax	5
Petroleum jelly	25
Avocado pear oil	10
Cod-liver oil	10
Cholesterol	1
Water	22

No. 2	*parts*
Diglycol palmitate	10
Lanolin	3
Petroleum jelly	15
Liquid paraffin	10
Cosmex butter	3
Water	35
Preservative	q.s.

Another example is given as consisting of ½ lb. gum arabic dissolved in ½ gal. hot water, 2½ ozs. soap chips dissolved in ¾ gal. hot water, ½ lb. lanolin ½ oz. glycerin and ½ oz. boric acid.

Ointment bases have also been prepared which, it is claimed, can penetrate the blood stream and thus have enhanced curative and ameliorative effects. Pure lanolin (3 gr.) is thoroughly mixed with 1.5 cc. of absolute alcohol forming a homogeneous base which is solid when cold. The B.P. 1932 recognized an ointment base which consists of 85% soft paraffin, 10% hard paraffin and 5% lanolin. Other ointment bases incorporating lanolin consist of: (*a*) stearyl alcohol 2, lanolin 2, soft paraffin 43, olive oil 4, rose water 46; (*b*) lanolin 33.3%, soft paraffin 33.3% and water 33.4%; (*c*) beeswax 5, lanolin 5, soft paraffin 90; and (*d*) cetyl aochol 4, lanolin 10, soft paraffin 86.

Vitamin-chocolate preparations also employ lanolin. According to Lower, cocoa or chocolate vitaminized by the addition of irradiated ergosterol utilizes lanolin in the mixture in place of part of the cocoa-butter content.

COSMETIC MATERIALS CONTAINING SULFUR

Incorporating sulfur into cosmetic raw materials forms the basis of two recently issued patents. As is pointed out in one of these patents (U. S. 2,333,093), issued to F. E. Dearborn, preparations containing uncombined or colloidal sulfur are valuable in the treatment of certain skin disorders such as acne, seborrhea and other dermatological ailments. Dearborn's invention is claimed to be an improvement over such preparations in that the sulfur is in chemical union with a vegetable or animal oil or fat and consequently is easily absorbed by the skin, hair or scalp. In the patented process, the sulfur is made to chemically combine with an aliphatic unsaturated monocarboxylic acid or its glyceride without the removal of hydrogen from the molecule; the sulfur saturating the double bonds in the acid molecule to form a series of new acids in the presence of specified catalysts.

The resulting sulf-acids, sulf-glycerides and sulf-esters can be used to make shampoos, creams and the like, such as the following cleansing cream:

Anhydrous lanolin	4.6 Gm.
Paraffin wax	4.6 Gm.
Beeswax	11.3 Gm.
Ethyl-9-10-mono sulfur octade canoate	55.0 Gm.
Glycerine	5.0 Gm.
Distilled water	35.0 cc.

The second patent (U. S. 2,326,936) covers the production of a cholesterol conversion product suitable for use in cosmetic creams and powders. The product obtained by mixing 1 part cholesterol with 2 parts of glycerine and

1 part of free sulfur and heating at 200-220° C. with agitation. Originally granted to a group of German inventors, the patent is now vested in the Alien Property Custodian.

OZOKERITE

Because it is finding mention in cosmetic formulation, data on ozokerite, given in *The Chemurgic Digest* (3:44, 1944) is of pertinent interest. According to this source, ozokerite is often employed as a substitute for beeswax and competes with it in the manufacture of cosmetics and other products. Sometimes known as mineral wax or fossil wax, purified ozokerite is marketed as ceresin.

Ozokerite is a natural bituminous product occurring in many parts of the globe in the vicinity of petroleum springs. Perhaps the best known variety is from Galicia. It occurs in appreciable quantities in some of the western states of the United States and a number of other places in the world. Its melting point depends upon the amount of liquid hydrocarbons associated with it.

The mineral is composed chiefly of hydrocarbon. It is freed from water and mineral matter by boiling with water, melting the wax and separating the two layers. The original color may be dark brown or greenish brown. The commercial product shows a hardness range from one which is less than that of the other waxes to grades as hard as gypsum or plaster of Paris. It reaches the market either as crude material, or natural yellow, or a purified product which is white. It is offered in bags of various sizes, and stands of 80 to 100 pounds in weight. It shows a zero value for acid number and saponification number, and is chemically inert.

OIL-BALSAM EMULSION

The advantages of an oil-balsam emulsion for use on wound dressings has been discussed in the *Bulletin of War* Medicine (4:67, 1943). Based on work done in Russia, the oil-balsam emulsion contains:

Juniper tar	5 cc.
Bismuth tribromphenolate	3 Gm.
Castor oil, to make	100 cc.

Potent against streptococci, staphylococci and the vegetative forms of anaerobic organisms, the emulsion is said to retain its antiseptic properties for at least a month and subjects the wound to a mild and beneficial irritation. Its use reduces pain and temperature and minimizes wound odor even in gas gangrene cases. Dressings prepared with this oil-balsam emulsion need not be changed as frequently as with other types of treatment.

VITAMIN P AND TISSUE RESPIRATION

Growing interest in the relationship between tissue repiration, especially that of the skin, and vitamins make pertinent a report on vitamin P (citrin) by C. Z. Wawia and J. Leyden (*Science* 96:302, 1942). Citrin, which is a mixture of flavanone glycosides, hesperidin and eriodictin, was isolated from lemon peel. The hesperidin was precipitated out and was converted into hesperidin chalone, which consists of light yellow microscopic crystals, m. p. 251-252°.

According to these workers it is possible that hesperidin chalone can serve as hydrogen transporters in mammalian tissue and it is believed that this or such substances play a part is tissue respiration.

Experiments have shown that the chalone exerts a beneficial effect upon the state of the capillaries, decreasing the fragility and preventing localized hemorrhages.

FLUORIDE SOLUTION FOR CARIES CONTROL

After six years of continual use of fluorides as a caries arresting agent, A. P. Atkins (*J. Am. Dent. Assn.* 31:353, 1944) reports on the rationale and practical use of a fluorine solution. The solution evidently acts as an enzyme-disturbing agent, upsetting the metabolic processes of the bacteria. Teeth with liberal amounts of fluorine deposited in them during the formative period seem to retain their caries resistance throughout life, but as yet we have no knowledge of the persistence of caries resistance of those artificially impregnated. However, the changes in number, size and kind of carious cavities after the use of a flourine solution impresses dentists. More impressive is the very definite decrease in mouth organisms held responsible for carious conditions after the use of such a preparation.

In preparing the fluorine mouth wash, a stock solution is made up as follows: To 4 liters of tap water, add 1 gm. of sodium fluoride. Sweeten with saccharin, flavor and color. The sweetening should be excessive as this is the concentrated solution and is to be diluted before use.

This stock solution is dispensed to patients with the instruction to use 1 teaspoonful in a half glass of water, as a mouth wash and gargle.

Atkins warns that because it is one of the violently poisonous elements, fluoride requires careful handling. In the preparation of solutions, one must keep well within the bounds of safety.

STARCH AS SULFA VEHICLE

Despite his belief that the local use of sulonamide drugs is on the wane and his objections to the sale of sulfas to the public for external use, H. Goodman (*Arch. Dermat. & Syph.* 49:16, 1944) suggests the use of boiled starch as an excellent base and a suitable vehicle for the external application of these compounds. To make this base 10 parts of starch are rubbed in cold water (sufficient to make 100 parts) until smooth. It is then heated with constant stirring until transluscent, and allowed to cool. Add the required amount of the sulfonamide compound, and mix.

FLEXIBLE PLASTIC-LIQUID ADHESIVE

In cases sensitive to ordinary adhesive, D. Rosenberg (*Arch. Surg.* 47:582, 1943) suggests that the following flexible plaster-liquid adhesive, which can be painted on to dressings, may be substituted:

Polyvinyl butral resin	20 Gm
Alcohol	120 cc.
Ether	20 cc.
Castor oil	10 cc

The resin employed is said to be available from Carbide and Carbon Chemical Corp., New York.

MARINE OILS AND HYPERTENSION

Studies on the effectiveness of various marine oil fractions in reducing blood pressure in hypertensive rats convinced A. Grollman and T. R. Harrison (*Federation Proc.* 2:81, 1943) that the depressor activity shown by marine oils was not due to the presence of vitamin A, since procedures which destroy the vitamin (ultraviolet irradiation, oxidation) tended to increase the blood pressure reducing capacity of the oils. The presence of the active principle in vitamin-A concentrates was attributed to autoxidation of some precursor other than the vitamin. The nature of the substance responsible for the observed blood-pressure-lowering effect is still unknown. It appears to be an oxidation product of some constituent (probably an unsaturated fatty acid or contaminant of the fatty acid fraction) present in various marine oils.

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ADVANCING THERAPY

PENICILLIN IN GONORRHEA

In an article on penicillin therapy in cases of sulfonamide-resistant gonorrhea, C. J. Van Slyke, R. C. Arnold and M. Buckholtz (*Am. J. Pub. Health* 33:1392, 1943) report that all of 15 patients with gonorrhea were cured with penicillin, given in six intramuscular injections of 20,000 units each at three hour intervals. Of 148 patients given larger doses, 142 were cured. Five injections of 10,000 units at 3 hour intervals cured 12 of 15 patients, but two of those not cured with this dosage responded later to six injections of 20,000 units. Most of these patients had received sulfonamides without cure of the gonorrhea, but previous treatment with these drugs did not seem to alter the reaction to penicillin.

In view of their findings and because of the present shortage of penicillin, these workers feel that five 10,000 unit doses should be attempted since retreatment with larger doses is possible should the smaller quantities fail to afford cure.

BIOLOGIC ANTIMICROBIAL AGENTS

In a discussion of antimicrobial agents of biological origin, R. J. Dubos (*J.A.M.A.* 124:633, 1944) presents some views that are of definite significance. He points out that during the past few years great and perhaps excessive emphasis has been placed on micro-organisms as sources of antimicrobial agents. The number and variety of antimicrobials produced by micro-organisms is constantly growing. These microbial products include simple organic molecules like hydrogen peroxide, pigments like pyocyanine (*a*-oxyphenazine), many phenols and quinones, complex organic substances like penicillin, polypeptides like gramicidin and tyrocidine, and protein enzymes like penatin.

Although many of these substances of biologic origin exhibit great antiseptic activity in vitro, only a few retain this property in the presence of animal tissues; in this respect antiseptics of biologic origin present the same problem as chemical antiseptics. From the point of view of chemotherapy, knowledge of the origin of an antimicrobial agent is less important than an understanding of its nature and of its chemical and biologic properties. Quinine and penicillin are obtained today from biologic sources; tomorrow they may be synthesized in the chemical laboratory; but whatever their mode of production, the student of infectious diseases will remain primarily concerned with their specificity for certain strains and stages of parasites, the mechanism of their action on the susceptible cells and their physiologic and pathologic effects on the host.

Antimicrobial agents obtained from natural sources—from animals, plants or micro-organisms—have revealed certain types of organic structures of unsuspected biologic activities; they will certainly give to the chemist and the biologist important clues for the preparation and the study of new biologically active agents.

COLD VACCINE STUDY

To the welter of conflicting views on the value of "cold vaccines" in the prevention of colds and other respiratory infections may be added the report of L. C. McGee, J. E. Andes, C. A. Plume and S. H. Hinton (*J.A.M.A.* 124-555, 1944). In summarizing their findings, they state that three oral vaccines and two vaccines for parenteral administration currently offered as prophylaxis against the common cold were given clinical trials in a group of industrial and office workers during the October to April season of 1941-42 and 1942-43.

However, no clearly evident protection against the common cold and related acute respiratory infections could be demonstrated in the results obtained in a clinical trial at mass immunization. Hence they feel that the indiscriminate use of cold vaccine now available is not the answer to the problem of industrial absenteeism due to acute respiratory infections.

THIAMINE NEEDS IN PREGNANCY

H. S. Lockhart, S. Kirkwood and R. S. Harris (*Am. J. Obst. & Gynec.* 43: 358, 1943) have made a study of the thiamine status of women in late pregnancy and early puerperium. Assays of thiamine intake and urinary excretion were made daily. Oral and intramuscular administration of thiamine was so arranged as to permit the measurement of thiamine excretion peaks. It was found increasing amounts of thiamine were necessary during pregnancy in order to produce these excretion peaks. Since three times as much thiamine was needed to attain the excretion peaks of women who were in late pregnancy or early puerperium, Lockhart and his associates suggest that the thiamine requirements during pregnancy and lactation are three times greater than the normal requirements.

VITAMIN C REQUIREMENTS

Indications that average vitamin C requirements may be higher than those generally recommended are given in the report of H. J. Purinton and C. Schuck (*J. Nutrition* 26:509, 1943) after a study of normal requirements for ascorbic acid. They used the saturation-test-dose method in making their determinations in 63 individuals, and by this method they found the average daily ascorbic acid requirement to be 113.6 mg. This varied, however, with the age of the subject, being higher for very young adults than for those between 25 and 50 years of age.

CHEMOTHERAPY OF CANCER

In a lecture before the Royal Institute of Chemistry, which was subsequently abstracted in the *Pharmaceutical Journal* (152:31, 1944), J. W. Cook reported on the advances being made in the chemotherapy of cancer. He pointed out that one of the principal objectives in the application of organic chemistry to cancer research must obviously be the control of tumor growth by chemical compounds. Many investigations have been carried out with this in view. The methods, of necessity, have been largely empirical, and outstanding success cannot be claimed so far. One of the most interesting attempts has involved the use of colchicine. The remarkable biological properties of colchicine suggested that it might influence tumor growth, and several workers have observed regression to tumors in tumor-bearing animals treated with colchicine. The effect is not regular, however, for unfavorable results were obtained by other investigators.

A few years ago it was reported that oil of wintergreen and heptaldehyde

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have a very powerful inhibitory action on the growth of spontaneous mammary tumors. Many of the tumors underwent complete autolysis. This work was developed and another aldehyde, citral, was found to be definitely inhibitory to tumor growth. Other workers have not been able to reproduce the results claimed with heptaldehyde, but there seems to be a case for further work with open-chain aldehydes. Possibly an oxidation product is responsible for the biological effects which have been observed.

In another approach to cancer chemotherapy it was suggested that carcinogenic compounds had growth-inhibitory action and retarded the growth of tumors and also of young animals. For example, a number of derivatives of 1:2:5:6-dibenz fluorene have been synthesized in the hope that it might be possible to find substances in which the growth-inhibitory action is enhanced and the carcinogenic activity depressed or obliterated.

Even greater inhibitory power than is shown by 1:2:5:6-dibenz fluorene was found in certain synthetic estrogens and in heterocyclic compounds of analogous structure to some of the complex fluorene derivatives. Two compounds have shown such promise in retarding the growth of experimental tumors as to warrant their clinical trial. The results obtained in cases of advanced and inoperable cancer, while by no means spectacular, have nevertheless been sufficiently encouraging to make further trials desirable.

MICROBIOLOGIC ANALYSIS OF AMINO ACIDS

As pointed out in an editorial in the *J.A.M.A.* (124:649, 1944), until now the quantitative measurement of amino acids, essential in normal life processes, has not always been easy. However, the study of bacterial growth has furnished an interesting and important solution of this quantitative problem. It has been referred to as a microbiologic method and introduces a new approach to the quantitative measurement of certain biologic substances essential for bacterial growth and present in food and in tissues.

Apparently this new procedure is quite precise, because growing bacteria have rigid requirements for the various amino acids and are able to discriminate not only between the natural and unnatural forms but also the various amino acids closely related as, for example, leucine and isoleucine. Should this new method become widely used and its accuracy confirmed, it will undoubtedly open a new era in our knowledge of the amino acid composition not only of food proteins but also of the various tissue proteins and body fluids.

FORMALDEHYDE FOR PLANTAR WARTS

Ordinary methods for removing plantar warts, found on the soles of the feet and palms of the hands, are often unsatisfactory and frequently dangerous. Thomson (*Brit. J. Dermat. & Syph.* 55:267, 1943) reports good results from the use of a 3 per cent aqueous formaldehyde solution. The solution is poured into a shallow vessel, such as a saucer, and the foot or hand immersed for ten minutes each night. Particular care must be taken to immerse only the thicker parts and avoid contact with thin skin areas since the application of such a solution involves a real risk of eczematous reactions on all areas except the soles and palms.

When this treatment was employed, in most cases the pain disappeared after seven to ten days, and at the end of a period varying from three to eight weeks the warts showed as white macerated plugs embedded in the epithelium. They were scraped away by means of forceps, leaving soft epithelium in the depths of the crater. This type of treatment is not applicable to warts on other parts of the body because of severe eczema produced on the surrounding skin.

SIMPLE SULFA TEST

Because the presence of sulfonamide drugs in the system may be an important factor in the use of other drugs or because of other reasons, a simple test for the sulfas, recently reported by R. Hubata in *War Medicine* (through *Science* Supplement for Feb. 25, 1944), holds considerable significance. Easy to perform, the test is made by moistening a small area on a blank strip of newspaper with one or two drops of urine from the person being checked. A drop of dilute hydrochloric acid (1:4 solution) is placed in the center of the moistened area. The immediate appearance of a yellow to orange color shows the presence of a sulfonamide compound in the system. The method is based on the color reaction in the presence of acids between crude cellulose, such as newspaper, wood splints or the like, and the arylamine group.

VITAMIN B COMPLEX IN ARTHRITIS

Considerable progress has been made during the past decade in the recognition and treatment of arthritic conditions. F. C. Hall (*Med. Clin. No. America* 27:1309, 1943) believes that the proper classification of various forms of arthritis is the first important step in treatment. He points out that increasing evidence is accumulating to prove that vitamin B deficiency may resemble "rheumatism," and that continued deficiency of the vitamin may pave the way for arthriti by producing vulnerable tissues. A patient may complain of aching joints and muscles and may evince tenderness on pressure over muscles, tendons or joints; there may be neuritis and alteration of tendon reflexes. No true arthritis is found, but the tongue and skin may show changes characteristic of vitamin B deficiency. In such cases it is recommended that 4 to 8 yeast tablets, powdered yeast, wheat germ, liver extract, or rice polishings be given to supplement an adequate diet. Lack of response may indicate some other factor as the cause.

IMPROVING LOCAL SULFA THERAPY

According to C. L. Fox (*Bull. New York Acad. Med.* 19:661, 1943) studies of infected wounds in man have revealed certain heretofore unrecognized factors that may lead to successful local sulfonamide therapy. Absence of the drug in the infected wound coincides with failure to control the infection. Present techniques of application maintain slight or no concentration of drug in the exudates of infected wounds. Increased hydrogen ion concentration, which may develop in exudates of infected wounds, will reduce the activity of sulfanilamide from ten to one hundred times, so that practically unattainable concentrations are required for bacteriostasis when acidic exudates are present. The actions of sulfadiazine and sulfathiazole are not greatly affected by the increased hydrogen ion concentration, the difference being that these drugs are rendered more insoluble. This hinders their dissolving in wound fluids and exudates. The use of the highly soluble sodium salts of sulfathiazole and sulfadiazine overcomes the major obstacles in local therapy.

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PURCHASING DEPARTMENT

O.P.A. Peppermint Oil Move Disappoints Dealers
Brazilian Bois de Rose Imports Quickly Taken

Increases in the base prices of peppermint oil were announced by the OPA. The Maximum price of natural oil is now $7 per pound for sales by producers, $7.50 per pound for sale by dealers, and $8.05 per pound for dealers sales of U.S.P. oil.

The new prices became effective April 4, 1944, and were established by OPA after the War Food Administrator recommended the increase in price to growers to encourage the production of peppermint oil for war purposes and to allow the successful operation of the peppermint oil allocation program.

In addition to the basic changes in peppermint oil prices, the action makes the following changes in the regulation: (1) It is made clear that the regulation does not apply to sales at retail. (Retail sales are covered by the General Maximum Price Regulation, with the individual sellers price set at his March, 1942, high.)

(2) Producers prices are specifically made applicable to sales in any container in any quantity, f.o.b. producers shipping point.

(3) Listed prices for dealers sales apply only to sales in 400 pound drums, and the previous requirement for maintenance of 1942 discounts, dollars-and cents packaging differentials and trade and transportation practices is limited to dealers sales.

(4) The definition of dealer is revised to exclude drug wholesalers, and in the case of U.S.P. redistilled oil of peppermint, is broadened to include all sellers other than drug wholesalers.

Active Market

Business in other essential oils and aromatic chemicals continued to be very active last month. In most cases demand was beyond ability of dealers to supply. Probably the biggest event in the essential oil industry since the war was the arrival of 480,000 pounds of bois de rose oil from Brazil. This was consigned to a New York broker. So scarce had this oil become that the entire shipment has already been consigned to the various essential oil dealers throughout the country. A considerable portion of this oil will undoubtedly be converted to the derivatives linalool and linalyl acetate, so very much needed by manufacturers of perfumes and cosmetics. Price-wise both the oil and the derivatives are now at favorable levels.

Essential oils delivered at shipside for export under Lend-Lease during 1943 amounted to 196,569 pounds. The kinds and quantities of oils were as follows:

	Lbs.
Caraway oil	352
Essential oils (miscellaneous)	37,188
Oil of nutmeg	100
Peppermint oil	156,155
Sassafras oil	1,000
Wormseed oil	1,774

A shortage in lemon oil is reported as well as a firmer market in other domestic oils such as cedarwood, wormseed and cedarleaf. In view of an ample supply of the spice, clove oil is offered at more attractive prices ranging from $1.50 to $1.55 per pound.

Eucalyptus Short

All attempts to get shipments of eucalyptus oil from Australia have failed. Spot stocks have declined to the point where quoted prices are generally considered to be nominal. Although there are sizable quantities of geranium oil in both Madagascar and in North Africa, exports are certainly not coming to this market. Expectations are high that Spanish oils will arrive here more freely. Spanish factors are offering spike oil, thyme, rue, etc. at more favorable prices which should make it possible to do business.

Hope for Bergamot

Hope has not been abandoned that bergamot and lemon oil will be forthcoming from Italy. As yet there are no reports of material on the way. Patchouli is becoming increasingly scarce. No imports from Borneo, Java and Madagascar. Palmarosa oil is offered only in small lots. Prices are likely to advance further. Anise oil is very scarce and likely to continue so until the United States can again resume normal trade with China.

Cedarleaf Firm

A very firm market prevailed in oil cedarleaf. Dealers have been unable to replace beacuse of the high primary market. They must stay within confines of the GMPR.

The peppermint oil order of OPA carried price data on spearmint oil, but merely continued in effect the official ceilings prevailing since they were established in September, 1943. The price situation in spearmint has made it practically impossible for local dealers to handle this item. Absolutely no relief has as yet been given distributors.

MARCH PRICE CHANGES

UP

Anethol 25c
Cedar wood oil 15c
Citral 15c
Damiana leaves 2c
Elder flowers 2c
Lemon grass oil 5c
Passion flower 4c
Peppermint oil natural $1.50
Redistilled $1.70
Sabadilla seed 1c
Saffron Spanish $5
Wild cherry bark green 2c

DOWN

Aloes Curacao 2c
Bois de Rose Brazilian $1.20
Chamomile flowers 3c
Clove oil 10c
Colocynth pulp 5c
Linalool 50c
Linalyl acetate 50c
Mercury bichloride 21c
Calomel 40c
Red precip. 40c
White precip. 20c

• Prices quoted in this section were current on the first of this month.

Procaine Hydrochloride U.S.P. XII
Procaine Base
Ethyl-Aminobenzoate U.S.P. XII
Butyl-Aminobenzoate U.S.P. XII
Iso-Butyl-Aminobenzoate
Phenacaine-Hydrochloride U.S.P. XII
Eucaine-Hydrochloride U.S.P. XII
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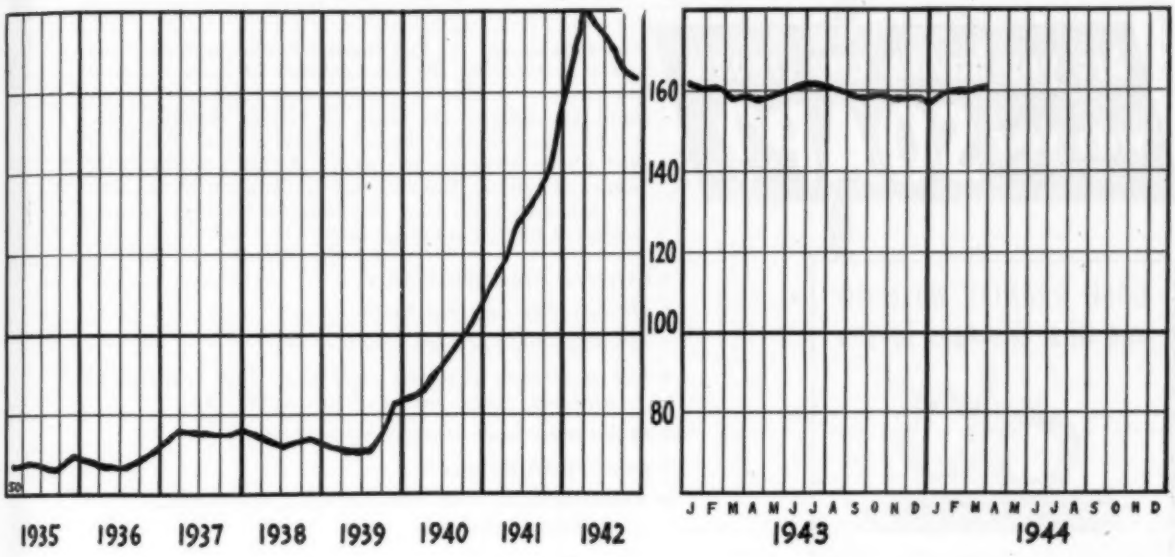
50 Raw Materials—Weighted Price Index. 1926=100.



The price index of fifty commodities for March, 1944, advanced to 161.2 from the previous 160.6.

FINE CHEMICALS

Demand for fine chemicals continued at a high level during the entire period under review. Naturally the over-all picture of the market was one of continued firmness.

Developments of the month included allocation of hydrogen peroxide, soda peroxide, and soda perborate. Citric acid was allocated on a quarterly, instead of a monthly basis. Sugar became fully available to drug manufacturers based on their requirements in the 1941 base period. Mercurials were lower, penicillin was reduced.

Production of mercury in January this year is reported to have reached 4,400 flasks which is said to be equivalent to the monthly average production for the entire year of 1943. This is explained by the fact that since the Government discontinued buying the metal January 31, every effort was made to produce as much as possible before the termination of the Government contracts. Consumption in January amounted to 3,400 flasks, a decline of 1,100 flasks from the average monthly consumption of 1943.

Stocks in dealers' and consumers' hands at the end of January amounted to 11,300 flasks in contrast to 11,500 flasks held at the end of January, 1943. Stocks in producers' hands at the close of January this year were 5,549 flasks as

(*Continued on page 475*)

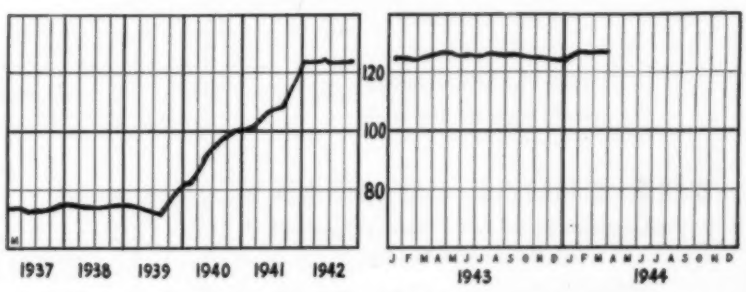
BOTANICALS

This is the season when botanical dealers direct their attention to the replacement of stocks depleted by Winter requirements. While the new collection season is at hand, it is necessary to say that the labor required for collection is not. The collection of botanicals from natural growth is, at best, an arduous task. It requires not only a considerable amount of manual labor, but some skill in identification and handling. Because prices paid in the country are naturally low, the work is often considered only when other means of livelihood are at a premium. Under present conditions dealers must compete with more remunerative fields of endeavor, and also are confronted with the loss of workers who previously had the experience necessary to do a good job of collecting. It should be stated that, although higher prices are being offered collectors than had been the case for many years, this incentive has failed to bring out manpower to any appreciable extent. Dealers, therefore, look toward the months just ahead with concern.

A desperate need for Bourbon vanilla beans has developed on spot. Although efforts are being made to obtain shipments from Madagascar, dealers have expressed the opinion that they are still quite uncertain when such shipments will become a reality. Factors have been in communication with the Free French Government in Algiers and indications are that beans will eventually be shipped in South African or English boats but there seems to be some lack of co-

(*Continued on page 477*)

15 Medicinal Chemicals—Weighted Price Index 1926=100



The medicinal chemical index remained without change at 128.0.

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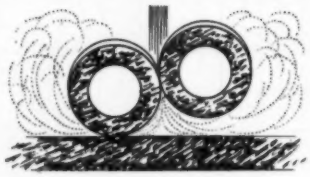

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CINCHOPHEN
8-HYDROXYQUINOLIN
IODOXYQUINOLIN SULPHONIC ACID
NEO CINCHOPHEN
OXYQUINOLIN BENZOATE
OXYQUINOLIN SULPHATE
POTASSIUM OXYQUINOLIN SULPHATE
PHENOBARBITAL
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PHENOBARBITAL SODIUM
SULPHANILAMIDE
TETRA-IODO-PHENOLPHTHALEIN SODIUM
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CYANO ACETIC ACID
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FINE CHEMICALS

(*Continued from page 473*)

against 963 flasks at the end of January, 1943.

The new and lower prices on mercurials, it is explained, place the derivatives more in line with the more favorable position of the basic materials. Calomel is now available at $2.35 per pound, corrosive sublimate $1.79, red precipitate $2.66, mercury oxide yellow $2.78, white precipitate $2.44.

Over 37,000,000 more pounds of glycerin are expected to be available for civilian purposes in 1944 than in 1943, bringing estimated consumption for this year to 199,150,000 pounds, according to a bulletin "The Fats and Oils Situation" from the Bureau of Agricultural Economics, U.S.D.A.

Drugs and pharmaceuticals are expected to consume 10,750,000 pounds of glycerin—a total which is about the same as that for each of the last four years.

However, a large jump is anticipated in the tonnage for toilet articles and dentifrices, for the 1944 figure is set at 10,000,000 pounds, as compared to a consumption of 2,823,000 pounds in 1943.

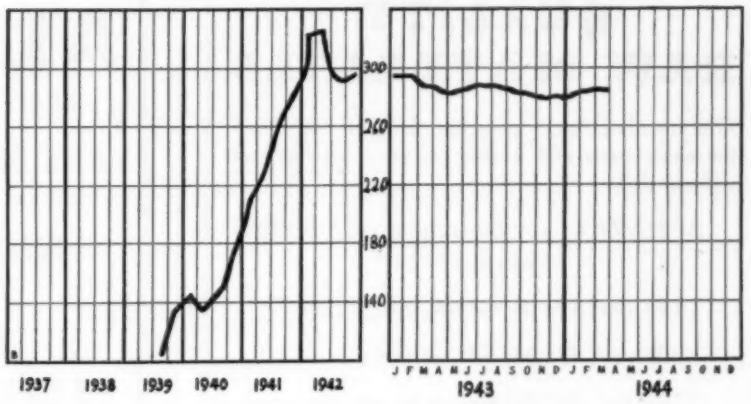
Quotations on tax-paid ethyl alcohol will be substantially higher as the result of an increase of $5.70 per wine gallon in the revenue tax on 190 proof. However, there will be a drawback of $11.40 per wine gallon provided for non-beverage alcohol.

In connection with the increase in the tax, OPA points out that drug manufacturers may not raise ceiling prices on products manufactured with ethyl alcohol over those originally established at the March, 1942 level, as a result of the increased Federal tax. While the tax will be an increase over that now in effect, it will still be a lower cost factor to drug manufacturers than the tax which was in effect when prices for the drugs were originally established under the General Maximum Price Regulation, which has a March, 1942, base pricing period.

Shortage of refined naphthalene and paradichlorobenzol is reported to be stimulating the demand for synthetic camphor. Tartrates continue to meet with a brisk inquiry.

The reduction in the price of penicillin amounted to $1.25 per 100,000 units placing the market at $3.25 per 100,000 units. Vitamins delivered at shipside

15 Botanicals—Weighted Price Index. 1926=100.



The botanicals index declined slightly to 282.6 from the previous 283.3. This was occasioned by a drop of 2 cents a pound in the price of aloes.

for export under Lend-Lease amounted to 64,825 pounds in December 1943, against 588,305 pounds for the entire year. In this respect a report to the effect that more than 500 tons of rose hips were gathered from the hedgerows of Great Britain and Wales during 1943, is of passing interest. The quantity of vitamin C which can be derived from this crop is estimated as equivalent to that which can be obtained from 25,000,000 oranges.

Supplies of castor oil are plentiful on spot. Total arrivals of beans since January 1 has now reached 79,751,750 pounds. The producton of castor beans in Brazil has had an extraordinary development in the past several years, according to the South American press. Output from the 1943 crop is expected to be 250,000,000 kilograms, increasing from 200,000,000 kilograms in 1941 and in 1942.

There has been no change in the featureless and dormant olive oil market. The price remains steady at ceiling prices, but there are so few offers that only slight trading is possible. With little hope of an adequate domestic supply negotiations are being continued by commercial sources in an attempt to obtain the much-needed imports but nothing has materialized as yet. Sources from which the oil most likely might come are Spain and North Africa.

MENTHOL

A wide divergence of opinion continuse to prevail regarding the production of Brazilian menthol. Brazilian principals place production at as high as 594,000 pounds of peppermint oil, the equivalent of from 240,000 to 268,000 pounds of menthol. A Department of Agriculture report estimates production at 330,000 pounds. Estimates of Brazilian production of menthol have varied widely in the past and continue to meet with scepticism.

The Brazilian government plans to place a ceiling price on exports of menthol of $31 per kilo, it was learned from the State Department. Reports reaching the department from our Embassy in Brazil indicated that the ceiling has not been put into effect as yet, but that it would be shortly.

The department said also that it understands that the so-called "floor" price of $29 per kilo which had been established some months ago on menthol exports was being wiped out and that only the ceiling price would prevail, meaning that the prices would be allowed to fluctuate anywhere up to the $31 level.

The action of the Brazilian Government in eliminating the "floor" price and substituting the ceiling price is understood to have followed representations made by the American Embassy to Brazilian officials, on instructions of the State Department, of our dissatisfaction over the pricing of the export menthol by Brazil.

Meanwhile officials of the Office of Price Administration are continuing work on a proposed new import price regulation fixing new ceilings on imported menthol prices and expressed the hope of being able to have the regulation ready for issuance shortly.

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BOTANICALS

(Continued from page 473)

operation between the English and the Free French factors envolved. In the meantime, a sizable crop of Mexican beans will shortly become available. Cuts will arrive in April and whole beans in May/June. While the Mexican crop is generally expected to amount to from 250,000 to 300,000 pounds, this is not enough for over-all vanilla bean requirements here.

The possibility of growing pyrethrum and manufacturing insecticides in French Morocco has been under consideration. It is stated that the climate and soil in the Protectorate are suitable for the growing of the plant.

India's 1943-44 crop of nux vomica probably will be below average in size (the normal crop being about 1,500 long tons) because of labor shortages, transportation difficulties, fairly large-scale cutting of trees for firewood, and the relatively unattractive prices prevailing. The new crop in the producing centers of Orissa in the Calcutta area is, however, expected to total 700 long tons, or about the same as last year. Estimates of reliable trade sources placed exports from South India during the period July 1 to December 31, 1943, at between 300 and 400 long tons, a considerable decrease from the 600 to 700 long tons exported in the corresponding period of 1942. Stocks on hand in December 1943 were estimated at between 1,300 and 1,500 long tons.

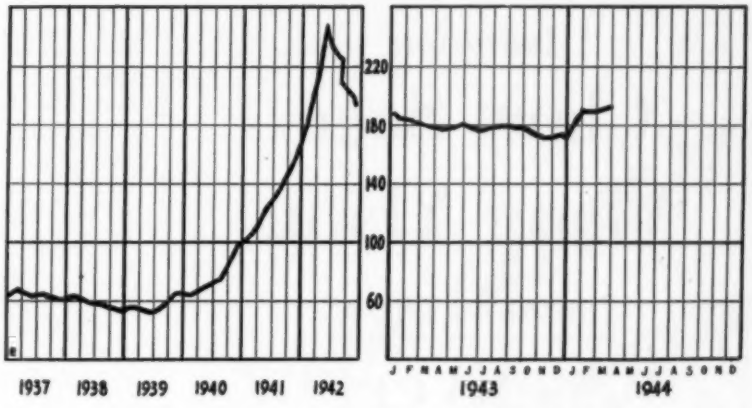
Since July 1943 the demand for gum aloes in the Netherlands West Indies has declined. Stocks on hand December 31, 1943, totaled 1,400 cases. The volume of future production is uncertain, as lack of rainfall may cause delay in harvesting the crop.

Sarsaparilla root is higher and various other botanicals produced in Mexico display considerable strength. Reports concerning a growing labor shortage in Mexico are discount in some directions. With the spot supply of colombo root down to a very low level, the market displays a decidedly firmer appearance. Whole root is quoted up to 17c and 18c a pound. According to reports, ample quantities are believed held in the primary center but exporters are encountering difficulty in obtaining steamer space. Unless a new source of supply for arnica becomes available the market is expected to be short during the year ahead.

A quinine commission was established in the Belgian Congo on January 10, 1944. Congo production of quinine probably will afford 125 tons of bark or 7.5 tons of quinine sulfate for export in 1945 and 175 tons of bark or 10 tons of quinine sulfate for export in 1946. The Governor General of the Belgian Congo has granted permission for an increase of cinchona plantations to a total of 3,000 hectares (7,413 acres). Interesting to note, in comparison, is the fact that Java plantations, which produced 95 per cent of the world's pre-war supply of quinine, had a total acreage of approximately 18,000 hectares (44,478 acres).

Yield of sesame seed from the 1943-44 crop in India is now estimated at 441,000 tons, against 463,000 tons last season. Cheap lots of gum Arabic have disappeared from the spot market and most holders are now asking 13c per pound for five to ten ton lots. Jobbing quantities are commanding 13½c to 14c. Good quality Hungarian style chamomile flowers from Argentina are available at 65c per pound. Other sellers quote 55c per pound.

15 Essential Oils—Weighted Price Index. 1926=100.



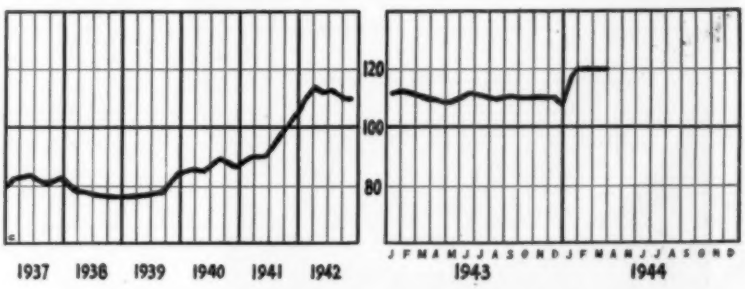
The essential oil index advanced to 186.7 from the previous 184.4. Peppermint oil natural was up sharply to $7.50. This more than offset the drop in Bois de Rose which sold at $3.90, and the lower price of clove oil which was offered at $1.55.

Select sassafras bark is hard to get on spot. The holdover supply here and in the primary market will be far under normal.

WAXES

After an exceptionally long period during which arrivals of carnauba wax had been small and irregular, a total of 23,127 bags reached this country all at one time. Such a quantity, in ordinary times, might be the signal for an eventual decline in prices, especially if the arrival provided important warehouse stocks after dealers had delivered against their to-arrive contracts. However, the 17,909 bags landed recently had been sold into consumption almost, if not quite, completely prior to arrival and the activity of dealers last week was mainly that of forwarding agents. The wax had been urgently needed by many manufacturing consumers. All other waxes continued in low supply and basically strong.

25 Cosmetic Raw Materials—Unweighted Price Index. 1926=100.



The cosmetic raw materials index remained unchanged at 114.3.

Imitation

Clary Sage

Ylang Ylang

Imitation Oil of

Vetivert

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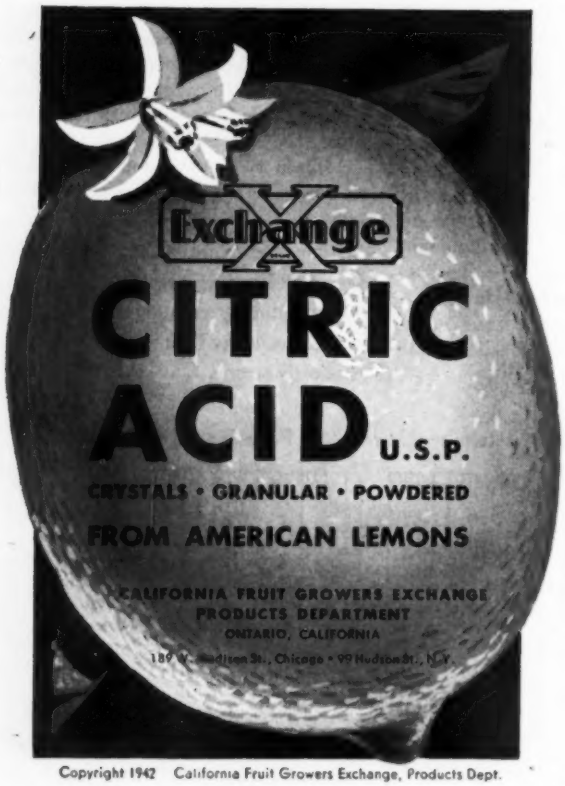

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Vigilance

(*Continued from page 402*)

her I had never heard of it. That was true, but from there on I didn't know what I was talking about. Because I picked up one of those real early editions of the Pharmacopoeia and said, "This book has every known drug in it." Naturally I did not find Aspirin and I said, "Doctor, there just isn't such a drug." With that she turned on her heels and out she went and I thought how did anyone so ignorant ever happen to become a doctor. Yep, at that time I thought I was a hundred times smarter than I am today.

Expedition. All production men are being pushed from all sides to get out more merchandise and in less time and with less help. There are ways this can be done. Better planning or scheduling of the work. Finding ways which will result in less handling of materials, less transferring of figures. Everytime a figure is transferred by hand, a potential source of error is introduced. Frequently the expediting of manufacturing invites, if not necessitates, taking processing out of the regular channels of production. Then we run it over roads with no guide posts, no traffic lights and all at once the end of the road is reached and there is no place to go except in reverse. In the end time has not been saved. As a matter of fact, it has been lost. Errors are discovered which have to be corrected and production is in worse shape than if the processing had followed the routine channels. Please do not conclude that I object to expediting production. It has to be done today. But we as pharmaceutical manufacturers must not do it at the sacrifice of accuracy.

I doubt if there is any factor more important in avoiding errors than good morale in an organization. Good morale means employees will take an honest pride in their work. And in turn honest pride means they will do their utmost to avoid errors.

Caps and Liners

(*Continued from page 411*)

ture, expansion and contraction take place simulating a breathing action. This action, together with the solvent and penetrating action of the ingredients of the product account for weight loss which is further evidenced by a drying out of the product which is thus rendered inefficient and unsalable.

While there are some quick tests which act as indicators, a weight loss test conducted on the actual product using the proposed caps and liners is the only test I know of which gives a true picture of how the product will stand up on the dealers' shelves. In conducting the test, at least twenty-five, preferably fifty, jars should be used for each type of liner under consideration. Further, it is quite essential that the cap and liner, or liner if it can be removed without injury, be accurately weighed on a balance reading to the second decimal place in grams before applying to the

jar. This is for the reason that if the facing is not impervious, the backing will absorb moisture and there will result an erroneous curve up to the time of total absorption at which time the backing will begin to lose its moisture and the curve will climb rapidly. (See diagram.)

Contrary to the general belief, it does not follow that the tighter the cap is applied, the less is the leakage or weight loss. Frequently one will point to the depression ring in the liner made by the lip of the jar and say, "We must be getting a good seal." Yet the test weighings prove otherwise. Studies along this line produce a curve (See diagram) indicating that at a given number of inch pounds of torque applied in tightening the cap, practically all of the sealing takes place. Regardless of how tight the cap is applied beyond this degree of pressure, the improvement in sealing is negligible.

Two devices are quite suitable for accurately applying the caps to a given number of inch pounds. The easiest to operate is the Torqometer manufactured by the Snap-On-Tool Corporation which is a wrench-like device on the handle of which is a dial reading directly in inch pounds of pressure applied. Adaptors or chucks to fit the various size caps are easily turned out by any machine shop. For those who wish to build their own, a device can be made from two clamps and a calibrated spring scale. One of the clamps is designed to hold the type or shape and size of jar being used. The second clamp is a split clamp designed to be fastened around the cap. This clamp is lined with rubber so that it will not damage the cap when it is tightened in position. The tightness is controlled by means of wing nuts which are screwed down just enough to keep the clamp from slipping.

The apparatus is operated by attaching the spring scale to one of several screw-eyes fastened in the extended arm or handle of the cap clamp at definite distances from the center of the cap. The product of the distance from the hook to the cap center multiplied by the reading in pounds on the spring scale gives the effort applied in inch pounds. Thus, if the scale reading is 10 pounds and the distance from the center of the cap to the hook is 12 inches, the pressure applied is 120 inch pounds. The number of inch pounds pressure to be applied varies with the cap distance. Taking a fifty-one millimeter cap as an example, we would apply 10 inch pounds, with more pressure for larger diameter caps, and less pressure for smaller diameter caps.

Having applied the caps, the jars are weighed and the weights recorded. The jars are then placed in a circulating air oven at 100° F., and once each week for a period of twelve weeks the jars are removed, allowed to cool to room temperature, and weighed. At the end of the test period the loss in weight is averaged. Liner absorption is checked and the weight average corrected if absorption is negligible. If absorption is very apparent, obviously the liner must be rejected.

These studies will be found interesting and educational, leading to production of better products and dollar savings.

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Suppositories

(*Continued from page 461*)

pository containing 10 grains of the drug with added lactic acid to bring the pH to 5.55.

The value of the sulfa drugs in the treatment of gonorrheal disorders hardly requires elaboration and the drugs are of definite value in local as well as systemic therapy. Bickers[41] has obtained highly satisfactory results in the treatment of acute gonorrhea in women by means of a vaginal suppository containing 20 grains of sulfonamide and 10 grains of lactose in a boroglyceride base.

Vaginal suppositories for contraceptive purposes enjoy a certain measure of popularity because of their convenience. However, such suppositories have been discussed in a recent issue of this journal[42] and so need not be considered at this time.

Urethrol suppositories probably do not find extensive use, but their value where sustained medication is required cannot be questioned. Generally made with glycerogelatin, such suppositories may be used in both the prevention and treatment of venereal disease. According to Fantus[3] strong silver protein (5 per cent) bougies may be used in venereal prophylaxis, while for treatment 0.1 per cent silver nitrate, 1 per cent zinc sulfate or 1 per cent resorcinol suppositories are employed.

From the foregoing, which is not presumed to be complete review of the subject, it is quite evident that suppositories have a definite and valued role in the modern medical armamentarium.

BIBLIOGRAPHY

1. Sollmann, T.: "Manual of Pharmacology" Ed. 5, Philadelphia, Saunders, 1937, pp. 37-8.
2. Caspari, C., Jr. & Kelly, E. F.: "Treatise on Pharmacy," Ed. 8, Philadelphia, Saunders, 1939, pp. 475-485.
3. Fantus, B.: "Technic of Medication," Ed. 3, Chicago, Amer. Med. Assoc., 1938, pp. 259, 374-9, 412.
4. Park, J. H., Jr.: J. Pediat. 23:326, 1943.
5. Husa, W. J.: "Pharmaceutical Dispensing," Ed. 2, Iowa City, Husa, 1941, pp. 153-172.
6. Lehmann, H. & Hediger, F.: Pharm. Acta. Helv. 14:83, 1939.
7. Chem.-pharm. A.-G. Bad. Homburg: Ger. Pat. 667,500, Nov. 14, 1938.
8. Ferraris, A.: Boll. chim. pharm. 77:725, 1938.
9. Rae, J.: Pharm. J. 148:13, 1942.
10. Jermstad, A. & Fretheim, B.: Arch. Pharm. Chim. 47:239, 1940.
11. Caldwell, A. F.: Quart. J. Pharm. & Pharmacol. 12:680, 1939.
12. Buchi, J. & Oesch, P.: Schweiz. Apoth.-Ztg. 79:385, 1941.
13. Anon.: Schweiz. Apoth.-Ztg. 79:152, 1941.
14. Lehmann, H.: Schweiz. Apoth.-Ztg. 81:201, 1943.
15. Breinlick, J.: Deut. Apoth.-Ztg. 55:397, 1940.
16. Freudweiler, R.: Schweiz. Apoth.-Ztg. 79:149, 1941.
17. Middendorf, L.: Munch. med. Wochnschr. 86:95, 1939.
18. Middendorf, L., Bockmuhl, M. & Starck. W.: U. S. Pat. 2,149,005, Feb. 28, 1939.
19. Bird, J. C.: J. A. Ph. A. 26:475, 197.
20. Bird, J. C.: U. S. Pat. 2,055,063, Sept. 22, 1936.
21. Shelton, R. S. & Magid, L.: U. S. Pat. 2,241,331, May 6, 1941.
22. Miller, G. C.: U. S. Pat. 2,321,694, June 15, 1943.
23. Schmidt, K. W.: U. S. Pat. 2,186,729, Jan. 9, 1940.
24. McCormick, E. J. & Ramsey, T. L.: J.A.M.A. 116:817, 1941.
25. Woolley, S. W. & Forrester, G. P.: "Pharmaceutical Formulas," Vol. 1, London, Chemist and Druggist, 1929, pp. 537-9.
26. "Merck Manual," Ed. 7, Rahway, March, 1940, pp. 570-2.
27. Dauer, M.: "Medical Formulary and Prescription Manual," New York, 1935, pp. 209-210.
28. "New and Non-official Remedies," Chicago, Amer. Med. Assn. 1943, pp. 474, 485, 496, 348-9, 262, 291, 408.
29. Gualdoni, G. C.: Boll. chim. farm. 77:373, 1938.
30. Mihalovici, A. & Bors, G.: Curierul farm. 10:1, 1940.
31. Flexner, J.: Ann. Int. Med. 11:1962, 1938.
32. van Aalst, D. J.: Brit. Pat. 499,765, Jan. 27, 1939.
33. Dechene, E. B.: J.A.Ph.A. 30:208, 1941.
34. Neugarten, L. & Steinits, E.: J. Clin. Endocrinol. 1:754, 1941.
35. Cornell, E. L.: Wisconsin Med. J. Feb. 1938.
36. Lewis, R. M. & Adler, E. L.: J.A.M.A. 106:2054, 1936, ibid. 109:1873, 1937.
37. Maser, C. & Schechter, F. R.: J.A.M.A. 112:1925, 1939.
38. Te Linde, R. W.: J.A.M.A. 110:1633, 1938.
39. Goldberger, H. A.: Am. J. Surg. 56:353, 1942.
40. Herz, L. F.: New York Physician 21:21, Nov. 1943.
41. Bickers, W.: Am. J. Obstet. & Gynec. 42:162, 1941.
42. Lesser, M. A.: Drug & Cosm. Ind. 53:32. 1943.

Preservatives

(*Continued from page 410*)

A patent granted to Randall and Van Grunenberg[239] suggests the use of small amounts of the esters of p-hydroxybenzoic acid in various deodorizing material for the perspiratory and menstrual secretions.

The esters of p-hydroxybenzoic acid have been suggested as suitable antiseptics for incorporation in an acid jelly.[340]

The esters of p-hydroxybenzoic acid have been used in many varied formulations. Sabalitschka[273] fused one part of methyl p-hydroxybenzoate with nine parts of sugar. The resulting water-soluble product had bactericidal properties. The esters were reported to be of use as preservatives for fungi.[64, 65]

Methyl p-hydroxybenzoate has been suggested as a preservative for suppositories[118, 119] to prevent decomposition through the growth of fungi and as a preservative for pills.[120, 121, 312]

a. *Hydrogen Peroxide*[67, 165, 166, 213, 262, 345, 346, 347]

The universal preservative for hydrogen peroxide has been acetanilide. Tests[213] have shown that the esters of p-hydroxybenzoic acid show marked superiority over acetanilide as a preservative for hydrogen peroxide.

Böhm[67] tested oxalic acid, urea, and methyl p-hydroxybenzoate as preservatives for hydrogen peroxide. Over a three year period, the hydrogen peroxide content had changed from 3% to 2.7% with methyl p-hydroxybenzoate, to 0.1% with the oxalic acid and became nil with urea.

b. *Eyewashes*[17, 127, 130, 160, 167, 219, 220, 221, 331, 332, 348]

Methyl p-hydroxybenzoate was recommended as a good preservative for eye wash[331] because it was practically nontoxic, a good antiseptic and disinfectant, and exerted no action on contact with conjunctiva.[332] Butyl p-hydroxybenzoate was also suggested as a preservative in eye washes,[160] especially with camphor water.[167] One gram of the butyl ester is said to protect forty fluid ounces of the collyria (eye solution) from mold growth.[167]

Eschenbrenner[130] suggests the use of 0.04-0.1% propyl p-hydroxybenzoate in the usual eye drops containing H_3BO_3, $KClO_3$, $ZnSO_4$, atropine, holocaine, hematropine and scopolamine. His conclusion is based on finding *B. Prodigiosus, B. Subtilis, Proteus vulgaris, Actinomyces, Staphylococcus albus, S. Citreus,* various yeasts. sarcina, penicillia, and *Aspergillus* in these eye drops. The use of the propyl ester will preserve the eyedrops indefinitely.

Further tests[17] on eye washes show that 0.05% propyl p-hydroxybenzoate was more effective than 0.2% of the methyl ester or 0.15% of the ethyl ester. The propyl ester had a killing effect in addition to the usual growth retarding.

c. *Medicinal*[52, 56, 72, 80, 89, 111, 124, 133, 134, 136, 154, 172, 173, 178, 179, 188, 195, 196, 202, 203, 205, 209, 210, 230, 235, 292, 294, 295, 311, 326, 349, 356, 373, 374]

A distinctive use for the esters of p-hydroxybenzoic acid in the medical field lies in their use as preservatives for sterile hypodermic solutions.[56, 80, 111, 113, 202, 230]

Methyl p-hydroxybenzoate was found to heal trichopyton infections of the scalp when used as a 5% solution in 70% ethyl alcohol or a 5% salve.[52] The same ester was used satisfactorily as a preservative for a nasal douche containing ephedrine hydrochloride.[154]

d. *Urine*[1, 343, 344]

The esters of p-hydroxybenzoic acid are recommended as the best all-around preservatives for urine samples.[344] A

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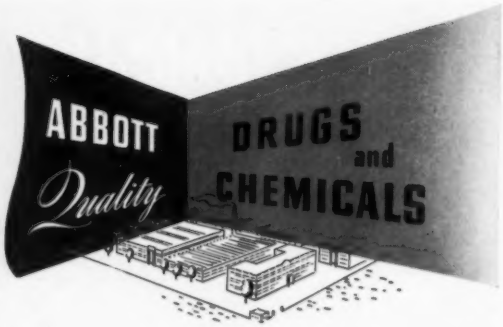

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concentration of 0.15% methyl p-hydroxybenzoate will preserve the urine and in addition will not disturb tests for glucose using Fehling's solution.[343] Sodium benzoate is not recommended because it will hinder the use of Fehling's solution while benzoic acid will interfere with acidity tests.

Food Preservation[8, 12, 14, 18, 26, 50, 51, 55, 57, 58, 70, 75, 76, 77, 78, 91, 93, 94, 99, 103, 104, 110, 115, 116, 122, 148, 149, 162, 163, 164, 175, 182, 184, 189, 190, 193, 199, 200, 214, 215, 216, 217, 218, 224, 226, 227, 236, 238, 244, 245, 257, 261, 262, 263, 265, 267, 269, 272, 275, 279, 282, 283, 287, 298, 300, 316, 330, 335, 350, 351, 353, 365]

The esters of p-hydroxybenzoic acid have been widely used as food preservatives in Europe, especially in Germany. In 1934, the German government allowed the use of the ethyl and propyl esters of p-hydroxybenzoic acid, their sodium salt and mixtures of the esters as shown below.[18] The figure represents the maximum allowable percentage.

Fish—0.05%
Liquid Egg Yolk—0.80%
Margarine—0.08%
Pickling Liquor for Cucumbers and Red Beet—0.08%
Fruit Juices (lemon, orange, cherry)—0.09%
Liquid Fruit Pectin—0.09%
Soft Drinks—0.05%
Confectionery and Chocolates—0.12%
Ices—0.015%
Liquid and Semi-liquid Coffee Extracts—0.10%
Malt Extract—0.05%

Sabalitschka[279] recommends the use of a mixture of 60% ethyl p-hydroxybenzoate and 40% propyl ester as a protection of foodstuffs against decay caused by fungi, bacteria and yeasts. He recommends 0.075% of this mixture to preserve unsweetened fruits and jams, such as cherry, apple, plum, apricot, strawberry, gooseberry, raspberry and currant. It can also be used to preserve vegetable conserves,[237] pastry, sweets (such as marzipan, persipan, etc.),[272] lemonade,[189] tobacco,[190] and fruit juices.[75, 122, 263, 330, 353]

For the preservation of sugar syrups, methyl p-hydroxybenzoate is recommended.[350]

Cheese has been preserved by 1% methyl p-hydroxybenzoate. This concentration serves to inhibit mold growth while the use of 0.2% will inhibit yeast growth.

Propyl p-hydroxybenzoate has proven extremely valuable as a preservative for edible gelatin.[335] Without an efficient preservative, it is practically impossible to keep the gelatin unspoiled. The presence of more than 0.125% sulfur dioxide makes it undesirable as a food product, while hydrogen peroxide tends to injure the gel structure.

Esters of p-hydroxybenzoic acid have been mentioned as preservatives for fish.[57, 162, 214, 215, 216, 217, 218] The German government permits the use of 0.025% of mixtures of the ethyl and propyl esters in marinated and jellied fish products, sliced tinned salmon and fried marinated fish.

The p-hydroxybenzoic acid esters are not generally recommended as a preservative for milk[361] although Mussill and Smejkal[226] showed that 0.05% propyl p-hydroxybenzoate slowed up or stopped completely the action of pepsin, rennet, catalase and diastase. In higher concentrations it influenced peroxidase.

Tilgner and Schillak[351] recommend 0.09% ethyl p-hydroxybenzoate as the best preservative for foodstuffs because of its effect on various classes of micro-organisms.

The esters of p-hydroxybenzoic acid have been suggested as preservatives for sakè and Schöyu.[200]

A patent for the preservation of the color of meat[104] has been granted covering the use of 0.625% of a mixture containing 50 parts sodium aluminate, 33 parts dextrose, 13 parts sodium benzoate and 4 parts of the p-hydroxybenzoic acid esters. The use of a coating agent consisting of paraffin wax, liquid paraffin, and the ethyl and propyl esters of p-hydroxybenzoic acid, is suggested for eggs and fresh fruit.[316] There have been a number of additional patents issued recommending the use of esters of p-hydroxybenzoic acid in foodstuffs.[110, 115, 116, 257, 261, 262, 275]

a. *Fermentation*[93, 148, 149, 184, 185, 213, 236, 287]

Cultrera[93] studied the effect of preservative agents in arresting fermentation of malt. In solutions of pH over 7.0, propyl p-hydroxybenzoate had a marked antiseptic action, while the benzyl ester, the free acid, and salicylic acid had no effect at all. In acid solution, salicylic acid was nearly as effective as the propyl ester.

Studies[213] were made on the fermentative action of *S. cerevisiae* which led to the following conclusions:

1. The methyl, ethyl and propyl esters of p-hydroxybenzoic acid possess marked antifermentation action.
2. Their action is proportional to the molecular weight.
3. The propyl esters have a more intense action than the acid, which follows it closely.
4. The sodium derivatives of the esters have a slightly less intense action but are much more soluble.
5. For toxic action on the yeasts, the following concentrations are required:

Propyl p-Hydroxybenzoate—0.06%
Ethyl Salicylate—0.08%
Sodium Propyl p-Hydroxybenzoate—0.11%
Sodium Salicylate—1.40%
Benzoic Acid—0.10%
Sodium Benzoate—2.75%

Textiles[79, 107, 201]

A number of patents have been issued covering the use of esters of p-hydroxybenzoic acid in the textile field. One use is as a fungicide with a sulfonated ester of an aliphatic dibasic acid employed as a wetting agent.[107] It is mentioned that the p-hydroxybenzoic acid esters facilitate the action of the wetting agent resulting in a yarn or textile which is stronger and more flexible than a textile treated only with the wetting agent.

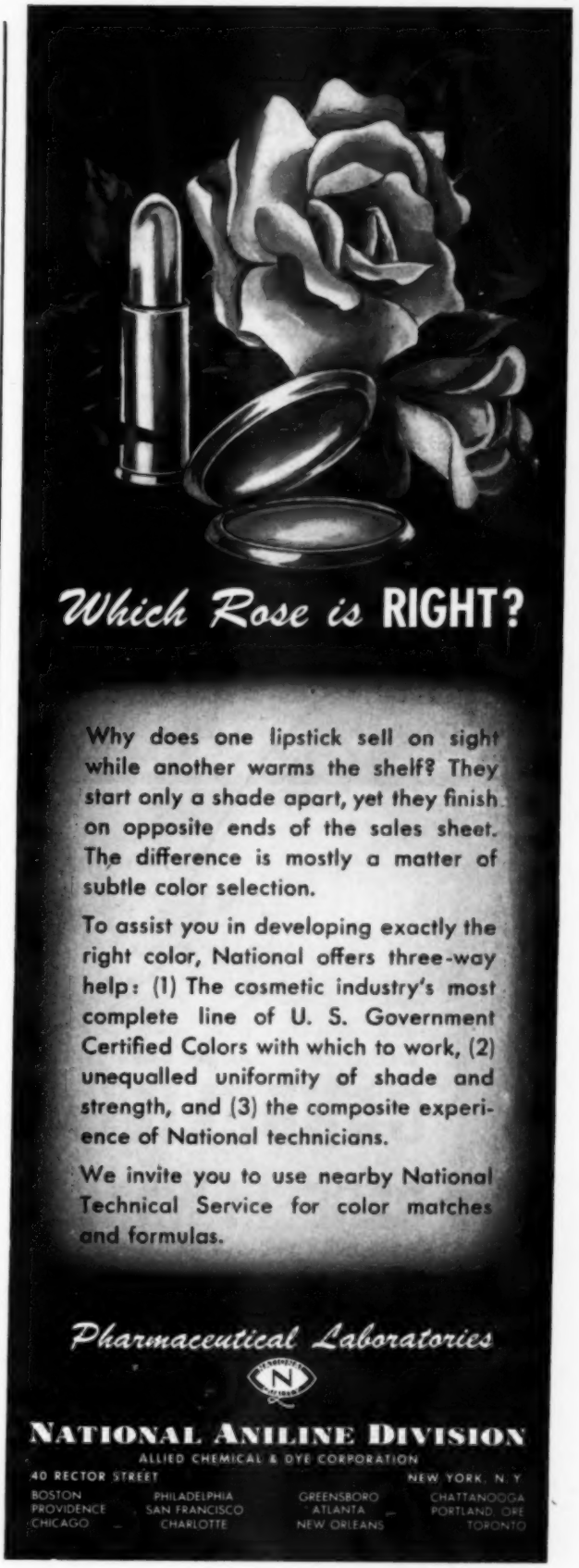
The use of 0.1% of a mixture of two parts of sodium trichlorophenate and three parts of propyl p-hydroxybenzoate hinders the development of mildew on cotton, wool or other textiles.[201]

The esters of p-hydroxybenzoic acid have been suggested as a preservative for non-drying animal or vegetable oils, or fats which are used as a textile dressing.[79] Recommended proportions to be used are from 0.2 to 4% ester based on the weight of the oil or fat which was used.

Gelatin and Glue[7, 180, 201, 206, 224, 301, 363, 373]

Sabalitschka and Böhm[201] tested benzoic acid, salicylic acid, sodium benzoate, boric acid and methyl p-hydroxybenzoate as preservatives for gelatin. Only the methyl ester in concentrations of 0.03-0.085% prevented the growth of micro-organisms.

The esters of p-hydroxybenzoic acid can be used for the prevention of bacterial infection of photographic emulsions. The use of 0.05-0.10% methyl p-hydroxybenzoate is recom-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mended.[206] A mixture of one part trichlorophenol acetate and three parts methyl p-hydroxybenzoate, used in a concentration of 0.05% will prevent the formation of fungi on photographic gelatin.[201] The use of 0.07-0.1% of the methyl and propyl esters of p-hydroxybenzoic acid is recommended as a preservative for photoplate gelatin.[224]

Methyl p-hydroxybenzoate has been suggested as a preservative for albumen used in the preparation of light-sensitive lithographic surface coatings.[372] The suggested concentration is 0.5% of the ester, based on the total volume of the solution.

The use of 0.025% of a mixture of two parts tetrachlorophenol and three parts of methyl p-hydroxybenzoate is said to prevent mildew in 25% bone glue.[201]

Analytical Studies

The analytical research devoted to the esters of p-hydroxybenzoic acid may be found in the following references:

Detection and Determination in Foodstuffs: [26, 42, 144, 158, 168, 169, 187, 290, 297, 225, 366, 369, 370]

Determination by Various Methods:[28, 92, 106, 109, 170, 177, 240, 242, 243, 249, 314, 317, 358]

Detection:[141, 143, 191, 291, 339]

General Studies:[192, 208, 377]

Physical Characteristics

	Methyl	Ethyl	Propyl	Butyl
Theoretical Molecular Weight	152.14	166.17	180.20	194.23
Melting Point (Pure)	125–127 °C.	116–118 °C.	97–100 °C.	68–71 °C.
Solubility—Grams per 100 Grams				
Acetone @ 25 °C.	50*	72*	105*	240
Benzene @ 25 °C.	0.7	1*	3	40
Carbon Tetrachloride @ 25 °C.	0.1	1*	0.5*	1
Ether @ 25 °C.	25*	45*	50*	150
Methanol @ 25 °C.	59	83*	100*	220
Ethanol @ 25 °C.	52	70	95	210
Peanut Oil @ 25 °C.	0.5	1	1.4	5
Propylene Glycol @ 25 °C.	22	25	26	110
Water @ 25 °C.	0.25	0.17	0.02	0.02
Water @ 80 °C.	1	1*	0.2*	0.15

*Approximate values

Methods of Incorporation[29, 69, 97, 212, 341]

Böhm[69] suggests the following procedure for using the p-hydroxybenzoic acid esters: "Dissolve the free esters in the water to be used by boiling for five minutes with vigorous stirring and then thoroughly mix with the preparation. If water is to be avoided, dissolve the free esters in 95% alcohol. If the water soluble salts are to be used, a 40% stock solution is prepared. For strong antiseptic effect 0.2% of the benzyl ester is recommended."

De Navarre[97] recommends that the methyl ester be made up as a stock solution in alcohol while the propyl ester should be dissolved in oils by the aid of heat.

For use in a considerable number of products which are acid in nature, the Parasepts can be easily introduced in the form of the sodium compounds.[164a] It is emphasized that the sodium compounds of the Parasepts are suitable only in acid products, because the acidity is essential in the finished product to break down the sodium compound and again liberate the free Parasept ester. The solutions of the sodium compound must be used immediately, as on standing there is progressive hydrolysis. The method of preparation [164a] of these sodium compounds is as follows:

Prepare a 5% (by weight) solution of sodium hydroxide. The parasept ester is added to the sodium hydroxide solution

with stirring and the stirring continued for about ½ hour. The temperature should *not* be permitted to rise above 30° C. If these conditions are observed, there is no appreciable hydrolysis. The solution should be used immediately, or in any case within 24 hours of its preparation. The following are the proportions required:

1 lb. Methyl Parasept requires 5.25 lb. 5% NaOH
1 lb. Ethyl Parasept requires 4.80 lb. 5% NaOH
1 lb. Propyl Parasept requires 4.44 lb. 5% NaOH
1 lb. Butyl Parasept requires 4.12 lb. 5% NaOH

Sodium Salts[9, 24, 25, 53, 54, 59, 124, 204, 231, 234, 237, 263]

When a preservative is needed which is quite soluble in water, the sodium salts of the p-hydroxybenzoic acid esters can be used.[59] The sodium salts are many times as soluble as the respective ester.

Bayo[54] compared the action of sodium salicylate, sodium benzoate and the sodium salt of propyl p-hydroxybenzoate against *B. Coli* and *Proteus* cultures and on the fermentation caused by beer top yeast. He found that only the derivative of p-hydroxybenzoic acid was effective, even high concentrations of the sodium salicylate and sodium benzoate proving ineffective.

Other tests with bacteria, yeasts and fungi show that the minimum effective concentration of the sodium salts was 0.2% for sodium propyl p-hydroxybenzoate and 0.25% for sodium ethyl p-hydroxybenzoate. In margarine and other edible oils as much as 0.3% of the salts may be needed.[231]

Taste tests have been run on a mixture of the sodium salts of methyl, ethyl and propyl p-hydroxybenzoate.[25] A concentration of 0.020% of the mixture in water (200 ppm) could be tasted by 32 persons. Corresponding tests showed that the lowest concentration of sodium benzoate which could be tasted was 370 ppm. In sirups, tests on 15 persons showed the average taste threshhold for the mixture of the ester salts to be 530 ppm. while the value for sodium benzoate was 840 ppm. The minimum effective concentration of the mixture of the salts for preserving fruit juices was 900 ppm., as compared with 1350 ppm. for sodium benzoate.

The commercial utilization of the sodium salts of the p-hydroxybenzoic acid esters seems to be limited to these uses which require a high solubility in water and cannot tolerate alcoholic solutions of the straight esters.

Summary

It is apparent that the esters of p-hydroxybenzoic acid are excellent preservaties for most purposes. The definite percentage of the ester which is to be used in each application will of course vary somewhat depending on the material to be preserved and the length of time preservation is needed. For most products, from 0.1-0.2% of the p-hydroxybenzoate esters should be used.

BIBLIOGRAPHY

1. Adelheim, L., Kosmetologische Rundschau *3:* 103 (1935).
2. Amelung, H., Chemiker-Ztg. *57;* 614 (1933).
3. Anon., Pharmazeutische Post *64;* 292 (1931).
4. L'Industria Chimica *9;* 538 (1931); Drug Markets, January, 1931.
5. Kagaku Kogyo Yiko *#1;* 5 (1931).
6. Medicina et Pharmacia, August, 1931.
7. J. de Pharmacie de Belgique *8;* 699 (1926).
8. Food Manufacture IX: 80 (1934).
9. Zentralbl. f. Bakt.: 130 (11/1/1933).
10. L'Union pharmazeutique *79;* 202 (1938).
11. Drogisten-Ztg. (Vienna) *51;* 39 (1936).
12. Monatsschrift des Vereins der Fischindustriellen Deutschlands *25;* 97 (1929).
13. Pharmazeut. Ztg. *74;* 1637 (1929).
14. Die Deutsche Fischwirtschaft *1;* 15/16 (1934).
15. The American Perfumer: 52 (2/1937).
16. The American Perfumer: 50 (3/1937).
17. The Drug and Cosmetic Industry.
18. Food Manufacture: 102-104 (3/1934).
19. The Drug and Cosmetic Industry *37;* 459 (1935).

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20. Drug Markets, (1/1931).
21. The American Perfumer: 54 (1/1937).
22. Anselmino, E. and Gilg, E., Commentary on the German Pharmacopoeia, VI: 497, 560, 620, 650 (1928).
23. Applied Research Laboratories, Dayton, N. J. Special research report MX-124. (1/30/1939).
24. Applied Research Laboratories, Dayton, N. J. Special research report MX-185. (1/8/1942).
25. Arneus, T., Upsala Lakareforen. Forh. *39;* 257-60 (1933-4).
26. Arneus, T., Die Obst- und Gemuse-Verwertungs-Industrie *22;* 514 (1935).
27. Atkins, F., The Perfumery and Essential Oil Record *28;* 368 (1937); Fette u. Seifen *44;* 536 (1937).
28. Aufschnaiter, P. v., Scientia Pharm. *11;* 125 (1938).
29. Augustin,, J,, Seifensieder-Ztg. *56;* 127 (1929).
30. Deutsche Parfumerie-Ztg. *15;* 147, 172 (1929).
31. Seifensieder-Ztg. *56;* 53 (1929).
32. Deutsche Parfumerie-Ztg. *15;* 308 (1929).
33. Revista Italiana delle Essenze e Profumi *12;* 31 (1930).
34. Revista Italiana delle Essenze e Profumi *12;* 24 (1930).
35. Seifensieder-Ztg. *57-* 733 (1930).
36. Aromatics *14;* 28 (1931).
37. Deutsche Parfumerie-Ztg. *17-;* 266 (1931).
38 The Drug and Cosmetic Industry *34;* 6 (6/1932,.
39. Seifensieder-Ztg. *58;* 307-9 (1931).
40. Deutsche Parfumerie-Ztg. *19;* 245, 261 (1933).
41. The American Perfumer *29;* 106 (1934).
42. The Manufacturing Chemist *6;* 385 (1935).
43. Man. chem. pharm. Cosm. Perf. Trade J. *6;* 125 (4/1935).
44. Parfumerie moderne *29;* 105-13 (1935).
45 Seifensieder-Ztg. *63;* 711, 741 (1936).
46. Riechstoff Industrie und Kosmetik *11;* 108-10 (1936).
47. Manufacturing Perfumer *2:* 141 (1937).
48. Austrian Pharmacopoeia Commission, Pharmazeut. Monatshefte *11;* 49 (1930); *12;* 260 (1931); *13;* 98, 121 (1932).
49. Aye, Standesseitung Deutschen Apotheker *2;* 296 (1933).
50. Back, S., Pharm. J. *128;* 328-9 (1932).
51. Bagnolesi, U., Ind. Pual. Conserve aliment. *12:* 75 (1937).
52. Bang, H., Dermatol. Wochschr. *105;* 1096-9 (1937).
53. Bayo, C.P.S., Archiv der Pharmazie *267;* 669 (1929).
54. Bayo, C.P.S., Anales soc. espan. fis. quim. (tecnica) *27;* 302-12 (1929).
55. Becher, C., Seifensieder-Ztg. *62;* 25 (1935).
56. Bechtel, G., Deutsche Monatsschrift f. Zahnheilkunde *50;* 193 (1932).
57. Behre, A., Chem. Ztg. *54;* 325-7, 346-7 (1930); Die Konserven-Industrie *17;* 367, 382 (1930); Braunschweig Konserven-Ztg. No. 18: 6; No. 19: 6 (1930).
58. Behre, A. and Ulex, G., Zeitschr. Unters. Lebensm. *62;* 58 (1931); J. Soc. Chem. Ind. *50;* 1072 B (1931).
59. Behre, R., Deutsche Fischwirtschaft *1* (29): 497 (1934).
60. Bela, N., Gyogyszereszi Koslony *64;* 107 (1938).
61. Benzinger, Apotekarski Vjesnik *15;* 725 (1933).
62. Bijlsma, U.G., Arch. intern. Pharmacodynamie *34;* 173-9 (1928).
63. Bleyer, B., Diemair, W. and Leonhard, K., Arch. Pharm. *271;* 539-52 (1933).
64. Bodinus, Die Volksernahrung *2;* 153 (1927).
65. Bodinus, Z. f. Pilskunde *6* (new series): 94 (1927).
66. Bohm, E. and Jeglinski, H., Pharm. Ztg. *73;* 480-1 (1928).
67. Bohm, E., Pharm. Ztg. *74;* 1670-1 (1929).
68. Bohm, E., La Parfumerie Moderne *27;* 373, 487 (1933).
69. Bohm, E., Drug and Cosmetic Ind. *32;* 510 (1933); Riechstoff-industrie und Kosmetik *8;* 7, 22 (1933); The Manufacturing Chemist *4;* 282 (1933).
70. Bohm, E., Parfumerie Moderne *27;* 373-83, 487 (1933).
71. Bohm, E., The Manufacturing Chemist *7;* 372 (1936).
72. Bonde, W., Mitteilungen der Vereinigung Deutscher Anstalts- und Krankenhausapotheker *4;* 138 (1931).
73. Bonde, W., Pharm. Zentralhalle *73;* 273-6 (1932).
74. Bonnevie, P., Acta Dermato-Venereologica *17;* 576 (1936); Ann. dermatol. syphil. *8;* 528.
75. Braccesi, M. A., Boll. soc. ital. biol. sper. *14;* 265-6, 508-10 (1939).
76. Braun, W., Deutsche Nahrungsmittel-Rundschau *1931;* 111.
77. Braun, W., Deutsche Nahrungsmittel-Rundschau, *1932;* 22.
78. Breinl, B., Vestnik Ministerstva Zdravotnictvi *16;* 65-7 (1934).
79. British Celanese Limited, Brit. P. 454,666. (10/6/1936).
80. Buchgraber, J., Ber. d. Ungar. Pharmaz. Ges. *7;* 337 (1931).
81. Buchi, J., Pharm. Acta Helv. *8;* 27-38 (1933).
82. Budin, La France Dentaire *4;* 2196 (1935).
83. Burlinson, H., Quarterly J. of Pharmacy and Pharmacology *7;* 489-491 (1934).
84. Bushby, R., The Manufacturing Chemist *6;* 183 (1935).
85. Brunner, K., Pharm. Zentralhalle *79;* 367 (1938).
86. Casparis, P., Suddeutsche Apoth.-Ztg. *8:* 24 (1927).
87. Chassevant and Garnier, Arch. Intern. Pharmacodynamine: 93-170 (1905).
88. Conci, G., Nell'officina *2* No. 3: (1929).
89. Conci, G., Gazzetta Sanitaria *2* No. 3: 7 (1929).
90. Cremer, H., Zeitschr. f. Untersuchung der Lebensmittel *67;* 205 (1934).
91. Cremer, H., Zeitschr. f. Untersuchung der Lebensmittel *70;* 136-50 (1935).
92. Cultrera, R., Ind ital. conserve aliment *8;* 298-301 (1933).
93. Cultrera, R., Ann. chim. applicata *24;* 282-8 (1934).
94. D'Ambrosio, A., La Chimica e l'Industria *19;* 504 (1937).
95. Deakers, T. W., The Drug and Cosmetic Industry *38;* 479 (4/1936).
96. Deakers, T. W., The Drug and Cosmetic Industry *38;* 37 (1/1936).
97. De Navarre, M. G., The chemistry and manufacture of cosmetics. (Van Nostrand) 1941.
98. Delauney, M. P., J. Pharm. Chim. (8) *25;* 254-66, 545-60 (1937); (8) *26;* 177-216 (1937).
99. Demeter, K. J., Molkerei-Ztg. *52:* 1122 (1938).
100. Denmark, Danish Pharmacopoeia *1933;* 341, 345, 487.
101. Detrois, A., Archiv de la Droguerie Pharmaceutique *3;* 177 (1935); L'Argus des Pharmaciens *9* No. 18: 4 (1935); Le Propharmacien *22* No. 389: 21 (1935).
102. Detrois, A., Revista da Associacno Brasileira de Farmaceuticos *19;* 161 (1938).
103. Diemair, W., Riffart, H. and Schmelck, E., Mikrochemie *25;* 247-55 (1938).
104. Doyle, J. J., U.S.P. 2,177,519 (10/24/1939).
105. Dultz, G., Deut. Apoth.-Ztg. *55;* 752-3 (1940).
106. Dultz, G., Suddeutsche Apoth.-Ztg. *81;* 277-8 (1941).
107. Dulken, C. F., U.S.P. 2,315,405 (3/30/1943).
108. Durcsin, A., Suddeutsche Apoth.-Ztg. *73;* 574 (1933).
109. Edwards, F. W., Nanji, H. R. and Hassan, M. K., The Analyst *62,* No. 732 (1937).
110. Egeberg, H. S., Brit. P. 374,927 (6/14/1932).
111. Eggensperger, K., Mitteil. der Vereinigung Deutscher Anstalts- und Krankenhausapotheker *4;* 118 (1931).
112. Eggensperger, K., Mitteil. der Vereinigung Deutscher Anstalts- und Krankenhausapotheker *4;* 73 (1931).

113. Eliasson, A. and Dam, F., Tidsskrift for Danske Husholdningslarerinde, No. 6 (1937) and 1938.
114. Enderle, H., Zahnarztl. Rundschau *46-;* 1580, 1616 (1937).
115. Engels, W. H. and Weijlard, U.S.P. 2,046,324 (7/7/1936).
116. Engels, W. H. and Weijlard, U.S.P. 2,056,176 (10/6/1936).
117. Engels, W. H. and Weijlard, U.S.P. 2,089,197 (8/10/1937).
118. Eschenbrenner, H., Pharm. Ztg. *72;* 469-70 (1927).
119. Eschenbrenner, H., Pharm. Ztg. *74;* 469 (1929).
120. Eschenbrenner, H., Pharm. Ztg. *74;* 742 (1929)
121. Eschenbrenner, H., Drug Markets XXVI: 29 (1930).
122. Eschenbrenner, H., Zeitschr. f. das gesamte Krankenhauswesen *26;* 153 (1930).
123. Eschenbrenner, H. and Rosenberg, G., Zentralbl. f. Bakteriologie und Parisitenkunde Abt. 1, Orig. *122;* 517 (1931).
124. Eschenbrenner, H. and Rosenberg, G., Pharm. Ztg., *76;* 1316-7 (1931); Suddeutsche Apoth.-Ztg. *71;* 731 (1931); Med. Klinik *28;* 692 (1931).
125. Eschenbrenner, H. & Kohn, R., Pharm. Ztg. *77;* 275-6 (1932).
126. Eschenbrenner, H., Zentralbl. f. Pharmazie *3;* 146 (1932).
127. Eschenbrenner, H., Klinische Blatter f. Augenheilkunde *89;* 238 (1932).
128. Eschenbrenner, H., Pharm. Presse Wiss. (prakt. Heft) *1932;* 146-9.
129. Eschenbrenner, H. and Stoess, Pharm. Ztg. *78;* 519, 530 (1933).
130. Eschenbrenner, H., Apoth.-Ztg. *47;* 630-1 (1932).
131. Eschenbrenner, H., Pharm. Monatshefte *14;* 8, 36 (1933).
132. Eschenbrenner, H., Pharm. Monatshefte *14;* 169 (1933).
133. Eschenbrenner, H., Pharmaceutica Acta Helvetiae *9;* 178 (1934).
134. Eschenbrenner, H., Pharm. Zentralh. *75;* 17-20 (1934).
135. Eschenbrenner, H., Pharm. Ztg. *80;* 70 (1935).
136. Eschenbrenner, H., Pharmaceutica Acta Helvetiae *10;* 72 (1935).
137. Eschenbrenner, H., Pharm. Monatshefte *16;* 26 (1935).
138. Eschenbrenner, H., Pharm. Ztg. *80;* 961, 976 (1935).
139. Eschenbrenner, H., Die Krankenhaus-Apotheke *8;* 1 (1935).
140. Fernando, L. and Valenzuela, P., Rev. filipina med. farm. *29;* 151-64 (1938).
141. Fischer, R. and Stauder, F., Pharm. Ztg. *76;* 1071 (1930).
142. Fischer, R. and Stauder, F., Mikrochemie *2;* 300-6 (1930).
143. Fischer, R. and Stauder, F., Zeitschr. f. Untersuchung der Lebensmittel *62;* 658-66 (1931).
144. Fischer, R., Zeitschr. f. Untersuchung der Lebensmittel *67;* 161-72 (1934).
145. Fischer, C. V. and Martin, G. J., Scientific Proceedings, 43rd general meeting of the Soc. of Am. Bacteriologists, pp. 13-14 (1941).
146. Freund, L., Potravni Rozhledy *1;* 5-7 (1934).
147. Freund, L., Prager tierarztl. Arch. *14;* 93-6 (1934).
148. Garoglio, P. G., Il Progresso Vinicolo IX: 1011, 1031, 1096 (1933).
149. Garoglio, P. G., Il Progresso Vinicolo X: 1313 (1934).
150. Gershenfeld, L. and Tomkin, D., Am. J. Pharm. *111;* 385-99 (1939).
151. Gershenfeld, L. and Perlstein, D., Am. J. Pharm. *111;* 277 (1939).
152. Gert, Pharm. Presse *38;* 48 (1933).
153. Gorchoff, N. T., The Drug and Cosmetic Industry *46;* 682 (6/1940).
154. Grant, D. H., Can. P. 375,698.
155. Guterman, B. I., Proc. Inst. Sci. Research Food Ind. (Leningrad) *2* No. 2: 15-22 (1935).
156. Hagelstein, F., Die Krankenhaus-Apotheke *8;* 155 (1935).
157. Hagelstein, F., Pharm. Ztg. *80;* 544, 557, 567 (1935).
158. Hagiwara, S. and Tatsui, G., Gun idan-Zassi (Official publication of the Imperial Japanese Army Medical Corps) No. 234: 2 (1932).
159. Harry, R. G., The Manufacturing Chemist VII: 268 (1936).
160. Harry, R. G., The Manufacturing Chemist XI: 44-6 (1940).
161. Henrioul, F., J. de Pharmacie de Belgique *18;* 529, 547, 591, 613, 633, 651, 669, 691, 713, 735, 757, 775, 885, 903.
162. Hess, E., Can Chem. and Process Ind. XXIII No. 10: 495-499 (1939).
163. Hess, L., Die Obst- und Gemuse-Verwertungs-Industrie *22;* 283 (1935).
164. Hess, L., Die Obst- und Gemuse-Verwertungs-Industrie *22;* 692 (1935).
164a. Heyden Chemical Corporation, Technical Data Sheet. (6/18/1941).
165. Holl, K., Deutsche Apotheker-Ztg. *50;* 252 (1935); Latvijas Farmaceitu Zurnals *13;* 156 (1935); Eesti Rohuteadlane X: 78 (1935).
166. Holl, K., Deutsche Apotheker-Ztg. *54;* 946 (1939).
167. Holland, M. O., J. Am. Pharm. Assn. (Pract. Pharm. Ed.): 434 (1941).
168. Hostettler, H., Mitt. Lebensm. Hyg. *23;* 65-70 (1932).
169. Hostettler, H., Mitt. Lebensm. Hyg. *24;* 247-58 (1933).
170. Jansen, F. C. M., Chem. Weekblad *33;* 239-42 (1936).
171. Jenkins, G. L., Private communication to J. P. Remensnyder (1936).
172. Jensen, V. and Orner, H., Dansk. Tids. Farm. *7;* 183-202, 205-21 (1933).
173. Jensen, V. and Orner, H., Dansk. Tids. Farm. *8;* 233-61 (1934).
174. John, H. Scientia Pharm. *8;* 96-7 (1937).
175. Jugoslavin, Decree of the Ministry for Agriculture of the Jugoslav Kingdom: 5617 (2/25/1935); No. 74: 263 (11/6/1935).
176. Kaiser, Suddeutsche Apoth.-Ztg. *75;* 561 (1935).
177. Kaplan, I., Ber. *63B;* 1589-90 (1930).
178. Kappis, M. and Wagler, G., Zentralbl. f. Chirurgie 60: 970 (1933).
179. Karsmark, K. A., Svensk Farm. Tid. *42,* 93-5, 117-21, 137 9 (1938). (in German).
180. Keeser, E. and Rintelen, K., Beihefte zur medizinischen Klinik: 17 (10/1933).
181. Kern, W., Deutsche Apoth.-Ztg. *50;* 916 (1935).
182. Kieferle, F. and Leicht, W., Suddeutsche Molkerei-Ztg. *52;* 732 (1931).
183. Kleinknecht, Suddeutsche Apoth.-Ztg. *73;* 717 (1933).
184. Kluge, H., Zeitschr. f. Untersuchung der Lebensmittel *66;* 412 (1933).
185. Kluge, H., Zeitschr. f. Untersuchung der Lebensmittel *67;* 205 (1934).
186. Kneidinger, Zahnartzlichen Rundschau *39;* 1008 (6/8/1930).
187. Kobzarenko, V. S., Akad. Nank. U.S.S.R., Inst. Khem. Tekhnol. (Kiev) *1939;* 113 pp. (English summary).
188. Koch, K., Munch. Med. Wochenschr. *85;* 1036 (1938).
189. Kochs, Die Obst- und Gemuse-Verwertungsindustrie *21;* 597-8 (1934).
190. Koenig, P. and Muller, W., Zeitschr. f. Untersuchung der Lebensmittel *71;* 121-37 (1936).
191. Kofler, L., Osterr. Chem. Ztg. *44;* 107-10 (1941).
192. Kofler, L. and Kofler, A., Mikrochemie *3;* 44-51 (1931).
193. Kohn, R., Deutsche Nahrungsmittelrundschau *1930;* 193; "Merkblatter" Verband Badischer Apfelweinkeltereien *3;* 108 (1930).
194. Kohn, R., Medizinische Klinik *29;* 983 (1933).
195. Konrich, F., Munch. Med. Wochenschr. *85;* 897 (1938).
196. Korinek, J., Casopis ceskoslov. Lekarnictva *15;* 203 (1935).
197. Kraft, O., Med. Welt *11;* 1624 (1937).
198. Kramer, R. A., The American Perfumer *32;* (4/1936).
199. Krantz, J. C., Jr., Assoc. of Official Agr. Chemists, Vol. XVI: 316-18 (1933); Vol. XVIII: 372-3 (1935).
200. Kurono, K., Iwashita, N. and Toriyama, Sh., Report of the Governmental Institute of Brewing No. 117: 1 (1933).
201. Lehmann, R. and Michel, R., U.S.P. 1,879,351 (9/27/1932).
202. Leschke, E., Munch. med. Wochenschr. *77;* 2006 (1930); Die Fortschritte der Zahnheilkunde *7;* 112 (1931); Arztliche Sammelblatter *24;* 14 (1931).
203. Leschke, E., Arztliche Sammelblatter *24;* 202 (1931).
204. Leschke, E., Arztliche Sammelblatter *26;* 49 (1933).
205. Leschke, E., Arztliche Sammelblatter *26;* 1 (1933).
206. Leszynski, W., Phot. Ind. *27;* 426-7 (1929).
207. Liese, W., Archiv f. Hyg. und Bakt. *110;* 355 (1933).

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208. Lindpaintner, E., Mikrochemie *27;* 21-41 (1939).
209. Loos, H. O., Archiv f. Dermatologie und Syphilis *173;* 109 (1935); Die medizinische Welt *10:* 130.
210. Luhr and Gutschmidt, Deutsche Apoth.-Ztg. *53;* 146, 161, 172 (1938).
211. Lysalba, La Revue de Chimie Industrielle *42;* 286 (1933).
212. MacDonald, E. M., J. Am. Pharm. Assoc., Pract. Pharm. Ed. *3;* 181-2 (1942).
213. Mancini, M. A. and Basilisco, L., Boll. soc. ital. biol. sper. *9;* 327-9 (1934).
214. Metzner, H., Die Fischwaren- und Feinkost-Industrie: 165, 177, 187 (1929).
215. Metzner, H., Die Fischwaren- und Feinkost-Industrie: 47 (1931).
216. Metzner, H., Die Fischwaren- und Feinkost-Industrie: 31 (1931).
217. Metzner, H., Monatsschrift des Vereins der Fischindustriellen Deutschlands *27;* 3 (5/1931).
218. Metzner, H., Fischindustrielles Taschenbuch (Lucke): 152 (1932).
219. Miklos, K., Budapesti Orvosi Ujsag *18;* 1196 (1930); Brit. J. of Ophalmology *1931;* 649.
220. Miklos, K., Klinische Blatter f. Augenheilkunde *89;* (11/1932).
221. Miklos, K., Orvosi Hetilap *75;* 973.
222. Miller, C. E. and Rising, L. W., J. Am. Pharm. Assn., Scientific ed. *29;* 394 (1940).
223. Minen, A. J., Semina (Suomen Farmaseuttiliiton Anenkannattaja Organ for Finlands Farmaceutforbund No. 8: 235 (1932).
224. Mosevich, M. V. and Fuks, E. E., Microbiology (USSR) *5;* 688-708 (1936).
225. Mousoin, Deutsche Parfumerie-Ztg. *20;* 143 (1934).
226. Mussill, J. and Smejkal, O., Z. Fleisch. Milchhyg. *6;* 117 –(1931).
227. Nehring, E. and Bothe, F., Z. f. Untersuchung der Lebensmittel *71;* 44-57 (1936).
228. Nobili, L., Giorn. farm. chim. *84;* 168-75 (1935).
229. Norway, Norw. Gesetz-Ztg. *1936;* 406, 419-31.
230. Novatke, V., Kronika Farmaceutycsna *36;* 35, 51 (1937).
231. Novotel 'nov, N.V., Proc. Inst. Sci. Research Food Ind. (Leningrad) *2* No. 2: 4-10 (1935).
232. Nye, E. E., Austral. J. Pharm. *16;* 590, 183 (1935).
233. Oppenheim, B., Warsawskie Czasopismo Lekarskie *14;* 614 (1937).
234. Oppenheim, B., J. de medecine de Lyon *18;* 669 (1937).
235. Orner, V.J.O.N., Dansk. Tids. Farm. *8;* 233-61 (1934).
236. Paris, G., L'Industira Ital. delle Conserve Alimentari *10;* 205 (1934).
237. Pilich, F., Magyar Gyogyszeresz *6* No. 9: (1932).
238. Prado, L. de, Anales farm. bioquim. *5;* 72-7 (1934).
239. Randall, J.W.H. and Van Grunenberg, H., U.S.P. 2,131,235 (9/27/1938).
240. Reimers, F., Dansk. Tids. Farm. *12;* 203-10 (1938) (summary in German).
241. Reimers, F., Dansk. Tids. Farm. *12;* 240-7 (1938) (summary in German).
242. Reimers, F., Dansk. Tids. Farm. *14;* 219-24 (1940).
243. Reimers, F., Z. anal. Chem. *122;* 404-18 (1941)
244. Rendel, J. M., Water Life *4;* 299 (1938).
245. Rumania, Decree of the health ministry of the Rumanian Kingdom, No. 324. (1936).
246. Rosenberg, E., Gyogyszereszi Hetilap *70;* 148 (1931).
247. Rosenberg, E., Blatt der Apotheker (Budapest) *1* No. 13 (7/1931).
248. Rosenberg, E., Apotheker-Ztg., No 9 (4/22/1933).
249. Rosenthaler, L., Pharm. Zentralhalle *74;* 288-90 (1933).
250. Rybar, F., Casopis Ceskoslovenskeho Lekarnictva *8;* 193 (1928).
251. Rybar, F., Apotheker-Ztg. *44;* 730 (1929).
252. Sabalitschka, Th., Pharm Monatshefte *5;* 235 (1924); Chemiker-Ztg. *48;* 703 (1924); Apotheker-Ztg. *39;* 1160 (1924); Pharm. Ztg. *69:* 1018 (1924); Zeitschr. f. angew. Chemie *37;* 811 (1924).
253. Sabalitschka, Th., Arbeit. a.d. pharmaz. Institut d. Universitat Berlin XIII: 79 (1927).
254. Sabalitschka, Th., Suddeutsche Apoth.-Ztg. *8;* 24 (1927).
255. Sabalitschka, Th., Pharm. Zentralhalle *68;* 17-23 (1927).
256. Sabalitschka, Th., Schiz. Apoth.-Ztg. *65;* 169-75 (1927).
257. Sabalitschka, Th., U.S.P. 1,627,342 (5/3/1927).
258. Sabalitschka, Th., Pharm. Monatshefte *9;* 129-30 (1928); Apotheker-Ztg. *43;* 670 (1928); Pharm.- Ztg. *73;* 670 (1928); Zentralbl. f. Pharmazie *24;* 142 (1928); Suddeutsche Apotheker-Ztg. *9;* 266 (1928).
259. Sabalitschka, Th., Zeitschr. f. angew. Chemie. *41;* 460, 621 (1928); Chem.-Ztg. *52;* 460 (1928); Anseiger d. chem. Industrie *43-* 5 (1928); Suddeutsche Apotheker-Ztg. *68;* 368 (1928); Pharm. Zentralhalle *69;* 375 (1928); Pharm Monatshefte *9;* 136 (1928); Pharm. Acta Helvetiae *3;* 103 (1928); Zentralbl. f. Pharmazie *24;* 285 (1928).
260. Sabalitschka, Th., Archiv d. Pharm. *267;*272-90 (1929); Mitt. d. Deutsch. Pharm. Ges. *6;* 134 (1929); Zentralbl. f. Pharmazie *25;* 109 (1929); Pharm. Ztg. *74;* 337 (1929); Apoth.-Ztg. *44;* 304 (1929); Schweis. Apoth.-Ztg. *67;* 154 (1929); Pharm. Monatshefte *10;* 73 (1929); Suddeutsche Apoth.-Ztg. *10;* 142 (1929).
261. Sabalitschka, Th., Fr. P. 678,165 (3/21/1929).
262. Sabalitschka, Th., Br. P. 331,274 (3/28/1929).
263. Sabalitschka, Th., Z. f. angew. Chemie *42;* 936-9 (1929).
264. Sabalitschka, Th., Ber. *39;* 272 (1929).
265. Sabalitschka, Th., Eesti Rohuteadlane *4;* 277 (1929).
266. Sabalitschka, Th., Deutsche Nahrungsmittelrundschau *1930;* 154, "Merck-blatter" Verband Badischer Apfelweinkeltereien *3;* 72 (1930); Suddeutsche Kufer- und Kellerei-Ztg. *28;* 34 (1931); J. Pharm. Soc. Japan *54;* 78 (1934) (No. 623).
267. Sabalitschka, Th., Die Volksernahrung *5;* 247 (1930).
268. Sabalitschka, Th., Zentralbl. f. Pharmazie *29;* 176 (1930).
269. Sabalitschka, Th., Pharm. Ztg. *75;* 454-6, 466-8 (1930).
270. Sabalitschka, Th., Arch. Pharm. *268;* 653-73 (1930); Pharm. Ztg. *75;* 1069 (1930); Apoth.-Ztg. *45;* 1137 (1930); Chem.-Ztg. *54-* 724 (1930); Zentralbl. f. Pharmazie *29;* 325 (1930); Die Naturwissenschaften *18;* 1079 (1930); Pharm. Acta Helvetiae *5;* 286 (1930).
271. Sabalitschka, Th., Technische Blatter *20;* 605 (1930); Braunschweigische Konservenzeitung No. 35: 6 (1930).
272. Sabalitschka, Th., Kazett *29;* 676 (1931); Konditorei-Ztg. *60;* 314 (1932).
273. Sabalitschka, Th., Ger. P. 522,005 (3/28/1931).
274. Sabalitschka, Th., Arch. Pharm. *269;* 228-46 (1931).
275. Sabalitschka, Th., Ger. P. 526,917 (6/11/1931).
276. Sabalitschka, Th., The Manufacturing Chemist *2;* 5-7 (1931).
277. Sabalitschka, Th., Pharm. Weekblad *68;* 947-55 (1931).
278. Sabalitschka, Th., Pharm. Presse Wisseprakt. Heft. *1931;* 173-5; Zentralbl. f. Pharmazie *27;* 174 (1931).
279. Sabalitschka, Th., Mitt. Ges. Vorratsschuts *8;* 6-10 (1932); Rev. Applied Mycol. *11;* 466.
280. Sabalitschka, Th., Bolletino Chim. Farm. *71;* 6 (1932).
281. Sabalitschka, Th., La Parfumerie Moderne *26;* 383 (1932).
282. Sabalitschka, Th., Zeitschr. f. Fleisch- und Milchhygiene *43;* 199 (1932).
283. Sabalitschka, Th., Z. f. Ernahrung *2* (7): 202 (1932).
284. Sabalitschka, Th., Pharm. Monatschefte *13;* 225-8 (1932).
285. Sabalitschka, Th., Eesti Rohnteadlane *7;* 67 (1932).
286. Sabalitschka, Th., Arzt-Apotheker-Krankenhaus *3;* 141 (1933); Pharm. Ztg. *78;* 1265 (1933).
287. Sabalitschka, Th., Zeitschr. f. Untersuchung der Lebensmittel *67;* 203 (1934).

288. Sabalitschka, Th., Pharm. Ztg. *81;* 1301 (1936); Pharm. Monatshefte *17;* 237 (1936).
289. Sabalitschka, Th., Congr. intern. tech. chim. ind. agr., Compt. rend. Ve. Congr. *2;* 454-5 (1937); Zeitschr. f. Volksernahrung *12;* 289 (1937).
290. Sabalitschka, Th., Mikrochim. Acta *2;* 111-19 (1937).
291. Sabalitschka, Th., Veneficus *3;* 137 (1937); Norsk Farm. Tids. *48;* 348, 383, 402, 412 (1937); Suddeutsche Apoth. Ztg. *78;* 29, 37 (1938); Dan. Ubers. Farm. Tidende *48;* 576 (1938).
292. Sabalitschka, Th., Wiener Heilmittelrundschau *1;* 2 (1937).
293. Sabalitschka, Th., Ole, Fette, Wachse, Seifen, Kosmetik *1938;* No. 3/4: 4; Deutsche Lebensmittelrundschau *1938;* 55.
294. Sabalitschka, Th., Med. Welt. *12:* 575 (1938).
295. Sabalitschka, Th., Deutsche Apoth.-Ztg. *53;* 440 (1938).
296. Sabalitschka, Th., Pharm. Zentralh. *79;* 151 (1938).
297. Sabalitschka, Th., Congr. intern. tech. chim. ind. agr., Compt. rend., VI Congr. Budapest *1;* 519-26 (1939).
298. Sabalitschka, Th., Zeitschr. f. Untersuchung Lebensmittel *77;* 526-61 (1939).
299. Sabalitschka, Th. and Rohm, E., Apotheker-Ztg. *4;* 635 (1926).
300. Sabalitschka, Th. and Bohm, E., Pharm. Ztg. *71;* 496-8 (1926).
301. Sabalitschka, Th. and Bohm, E., Chem. Ztg. *51;* 301-2 (1927).
302. Sabalitschka, Th., Dietrich, K. R. and Bohm, E., Pharm. Ztg. *71;* 834-6 (1926).
303. Sabalitschka, Th. and Dietrich, R. K., Desinfektion *11;* 67-71 (1926).
304. Sabalitschka, Th. and Jacobson, U.S.P. 1,715,251. (5/28/1929).
305. Sabalitschka, Th., and Schweitzer, F. L., Arch. Pharm. *267;* 675-85 (1929).
306. Sabalitschka, Th. and Jeglinski, H., Arch. Pharm. *269;* 228 (1931).
307. Sabalitschka, Th. and Tietz, H., Arch. Pharm. *269;* 545 (1931).
308. Sabalitschka, Th. and Bohm, E., Zentralbl. f. Bakt. und Parasitenkunde, Pt. I, Orig. 123: 351 (1932).
309. Sabalitschka, Th. and Bohm, E., Ger. P. 592,826. (2/16/1934).
310. Sabalitschka, Th. and Tiedge, K. H., Arch. Pharm., Part 3: 383 (1934).
311. Sabalitschka, Th. and Pilger, Pharm. Monatsh. *19;* 93 (1938).
312. Saiko, B. and Ganzinger, K., Scientia Pharmaceutica (monthly supply of the "Pharmazeutische Presse") *8;* 69 (1937).
313. Salmony, La Parfumerie Moderne *26;* 607 (1932).
314. Samson, A. and Santos, A. C., Univ. Philippines Natural and Applied Sci. Bull. *4;* 149-54 (1934).
315. Schenk, D., Deutsche Drogistenschaft *56* No. 11: 13 (1936).
316. Schmidt, E. K. J., U.S.P. 2,222,000 (11/19/1940).
317. Schoorl, N., Pharm. Weekblad *78;* 413-20 (1941).
318. Schubel, K. and Manger, J., Arch. exptl. Path. Pharmakol. *146;* 208-22 (1929), Munchen Med. Wochenschr. 77, 13 (1930).
319. Schubel, K., Munch. Med. Wochenschrift *77;* 13 (1930); Medicina et Pharmacia, January, 1931.
320. Schugt, P., Pharm. Ztg. *80;* 302 (1935).
321. Schulten, C., Medisin. u. Pharmas. Rundschau *4* No. 68: 6 (1928).
322. Schultze, K., The Manufacturing Chemist *2;* 133 (1931).
323. Schumacher, H., Deutsche Parfumerie-Ztg. *16;* 486 (1930).
324. Schwarz, H., Suddeutsches Drogistenblatt *18* No. 6 (1931).
325. Schwarz, G. and Kahlert, O. Milchw. Forsch. *20;* 1:9 (1939).
326. Schwenke, B., Pharm. Monatsh. No. 18: 24 (1937).
327. Sedgewick, F. H., The Soap Trade and Perfumery Rev. No. 51: 93 (10/1932).
328. Sedgewick, F. H., Soap, Perfumery and Cosmetics: 234 (1936).
329. Serger, H., Die Konserven-Industrie *16;* 94, 491 (1929).
330. Serger, H., Die Obst- und Gemuse-Verwertungs-Industrie *22;* 409 (1935).
331. Shvartsman, M. B. and Gellerova, A. A., Farmatsiya *1939* No. 8: 3-7.
332. Simonelli, M. and Marri, R., Boll. soc. ital. biol. sper. *14;* 289-90 (1939).
333. Sonol, J., Rev. farm. (Buenos Aires) *83;* 175-82 (1940).
334. Sornet, R., Rev. of Brands of Perfume and Soap: 422 (11/1933).
335. Stadlinger, H., Kunstdunger u. Leim *28;* 435-9 (1931).
336. Stadlinger, H., Kunstdunger u. Leim *29;* 138, 177 209 (1932); Der Farbenchemiker *3;* 144, 180, 221 (1932).
337. Stahl, H., La Parfumerie Moderne *28;* 365 (1934).
338. Steinitzer, F., Zeitschr. f. Volksernahrung *9;* 55 (1934).
339. Stevenson, S. G. and Reuggan, J. C. L., The Analyst *63;* 152 (1938).
340. Strauch, C. B., U.S.P. 2,043,633 (6/9/1926).
341. Suess, A., The American Perfumer: 55 (6/1936).
342. Switzerland, Helvetica Pharmacopoeia V: 301, 453, 454, 573, 579, 580 (1934).
343. Tellera, G., Boll. chim. farm. *67;* 577-80 (1928); La Chimica *7;* 434 (1928).
344. Tellera, G., Pharm. Ztg. *74;* 366 (1929).
345. Tellera, G., L'Igiene e la Vita *12;* 464 (1929).
346. Tellera, G., Pharm. Zentralh. *70;* 727 (1929).
347. Tellera, G., Boll. chim. farm. *68;* 773 (1929).
348. Thomann, J., Pharm. Acta Helv. *10;* 103-9 (1935).
349. Thomann, J., Schweiz. Apoth. Ztg. *76;* 121 (1938).
350. Thome, K. E., Medd. Statens Mejereforsok, No. 3: 20 pp. (1939) (English Summary).
351. Tilgner, D. J. and Schillak, R., Przemsyl Chemiczny *21;* 329-46 (1937) (pp. 345-6 in German).
352. Todoroff, H., Pharm. Organ des bulgarischen pharm. Apothekervereins *16* No. 6: 9 (1926).
353. Todoroff, N., Bulgarische Apoth.-Ztg. I: 369 (1932).
354. Tonn, O., Overgedrukt uit het Geneeskundig Tijdschrift voor Nederlandsch-Indie, 10th ed., Deel 73. (1933).
355. Turtiainen, O., Zentr. Bakt., Parasitenk. I. Abt., Orig. *139;* 98-110 (1937).
356. Ubrig, E., Die Deutsche Apotheke *2;* 83 (1933).
357. Uno, "Kaiho" Society Report of the Apothekers in the Kyoto Imperial University No. 1: 12 and No. 2: 100 (1930).
358. Valencien, C. and Deshusses, J., Mitt. Lebensm. Hyg. *30;* 88-94 (1939) (in German).
359. Vallance, J. M., Soap: 25 (3/1937).
360. Van Dantzig, S. W., Pharm. Weekblad *76;* 113-25 (1939).
361. Velthorst, H., Pharm. Monatshefte *13;* 199-202 (1932).
362. Vergin, F., Zeitschr d. Reichfachschaft Techn. Asst. *5;* 57 (1938).
363. Vergin, F., Die Unshau in Wissensch. u. Technik *42;* 337 (1938).
364. Vergin, F., Zeitschr. d. Disinfektoren und Laboranten *13;* 65 (1938).
365. Vitolo, A. E., Ann. igiene *1939;* 457-67.
366. VonFellenberg, T. and Kranse, S., Mitt. aus dem Gebiete der Lebensmittelunters u. Hygiene *23;* 110 (1932).
367. Wagner, A., Seifensieder-Ztg. *59;* 137, 157, 171 (1932).
369. Weiss, F., Z. f. Untersuchung Lebensmittel *55;* 24-31 (1928).
370. Weiss, F., Z. f. Untersuchung Lebensmittel *59;* 472-80 (1930).
371. Winter, F., The American Perfumer: 47 (9/1937).
372. Wood, W. H., Ann Advertisement of Harris-Seybold-Potter Co.
373. Yamagmi, Medicina et Pharmacia, Nov. 1930.
374. Zbarskii, Y., Trans. Ukrain. Inst. Exptl. Pharm. *1;* 97-105 (in Russian, 105; in English, 105-6) (1938).
375. Zimmerman, W., Die Krankenhaus-Apotheke *10;* 4 (1937).
376. Zoltan, S., Magyar Chem. Folyoirat *43;* 40 (1937).
377. The National Formulary VII, Monograph, Page 286.

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